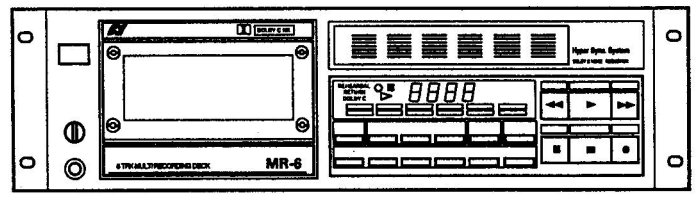
SANSUI

SERVICE MANUAL

MR-6

6 TRK MULTI RECORDING DECK



CAUTION

1. Parts identified by the ⚠ symbol on the schematic diagram and the parts list are critical for safety.
   Use only replacement parts that have critical characteristics recommended by the manufacturer.
2. Make leakage-current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

NOTICE

The symbols, OO, UL, CSA, EU and XX on the Parts list and the schematic diagram mean followings respectively.

OO ..... Manufactured for Japan market. (日本向け製品)
UL ..... Manufactured for U.S.A. market. (Underwriters Laboratories approved model.)
CSA ..... Manufactured for Canadian market.
EU ..... Manufactured for European market.
XX ..... Standard Version.
NON MARK ..... Common Parts.

• Specifications

Tape recorder section

Tape type..... C30-C60 Cassette tape (chrome)
Track format..... 6-track, 6-channel record/play
Tape speed/Deviation.....9.5 cm ±1 % per second
Pitch control.....±20 %
Wow & flutter.....0.06 % (NAB weighted)
Sync out.....–10 dBV/100 ohms
Frequency response.....40 to 15,000 Hz ±3 dB
Channel separation..... 50 dB (1kHz, 0VU)
Erasure..... 70 dB (1kHz)

Others

Power requirements
For U.S.A. & Canada.....AC 120 V, 60 Hz
For Europe.....AC 220 V/240 V, 50 Hz

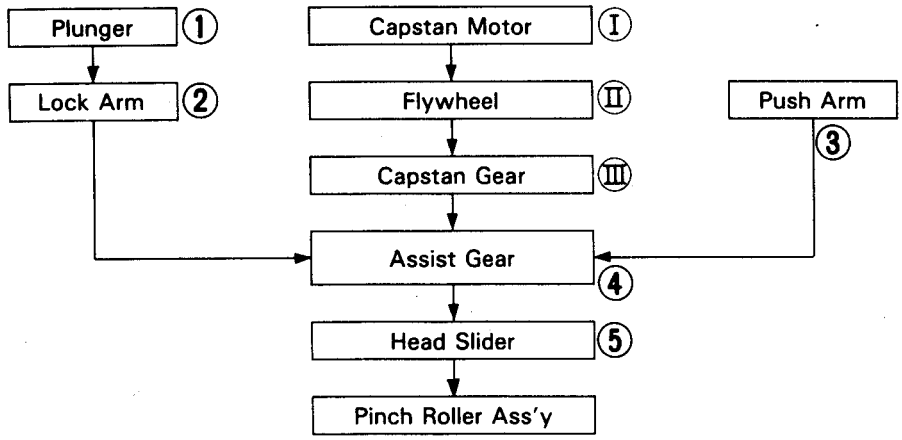
Power consumption..... 37 watts
Dimensions.....482 mm (18") W
145 mm (5-3/4") H
336 mm (13-1/4") D
Weight.....6.7 kg (14.8 lbs) net

* **Design and specifications are subject to changes without notice for improvements.**
* **Due to local laws and regulations, this unit sold in some areas are not equipped with variable voltage selectors.**
* **Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.**

"DOLBY" and the double-D symbol ⊡ are trademarks of Dolby Laboratories Licensing Corporation.

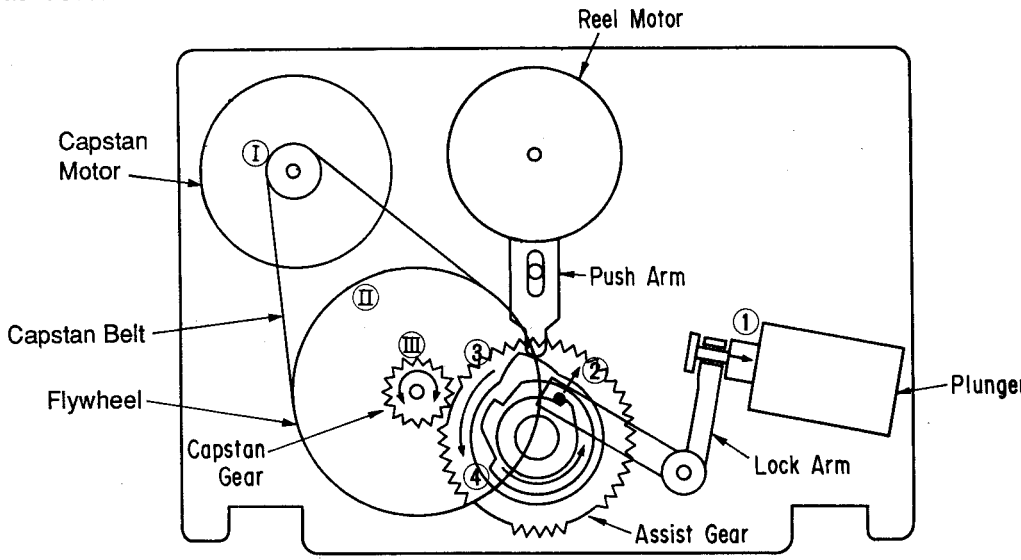
1. OPERATIONS OF PINCH ROLLER

1-1. Torque Transportation Flowchart

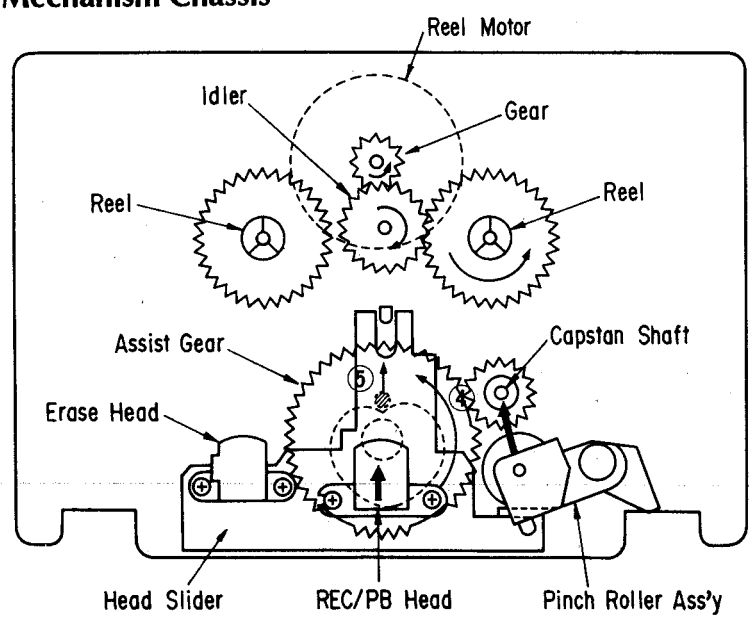


• The pinch roller is brought into pressure contact with the capstan shaft.

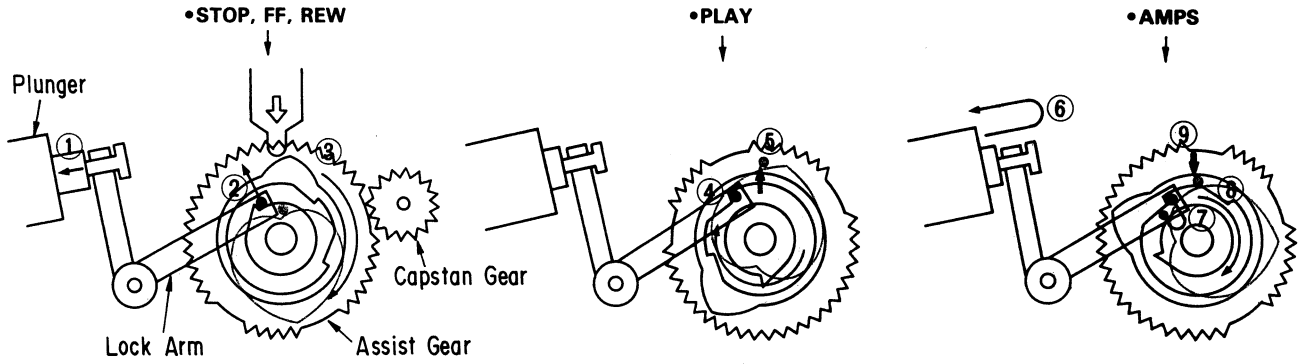
1-2. Rear View of Mechanism Chassis



1-3. Front View of Mechanism Chassis

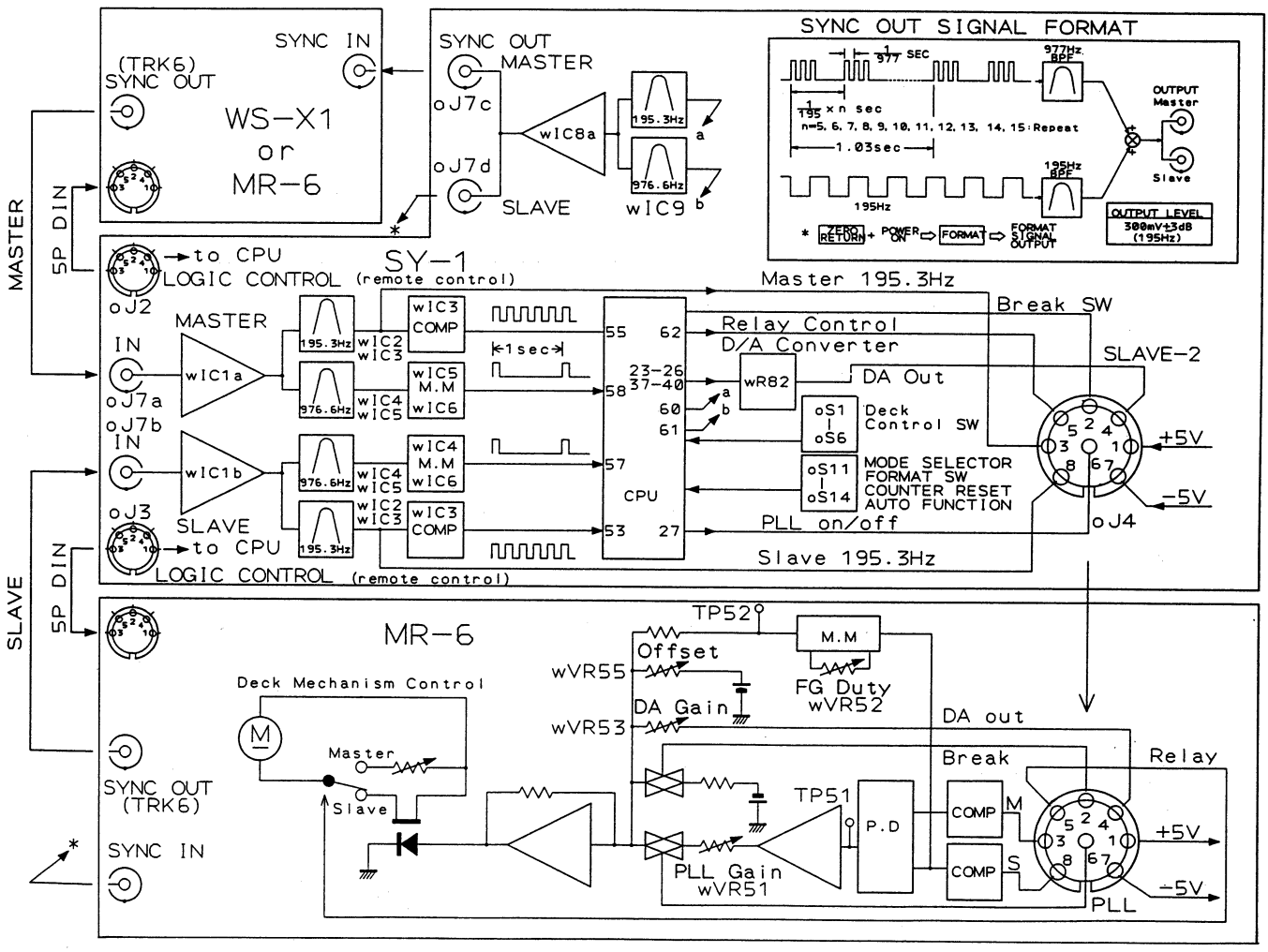


1-4. Cam Positions in the Modes of PLAY, FF, REW & STOP

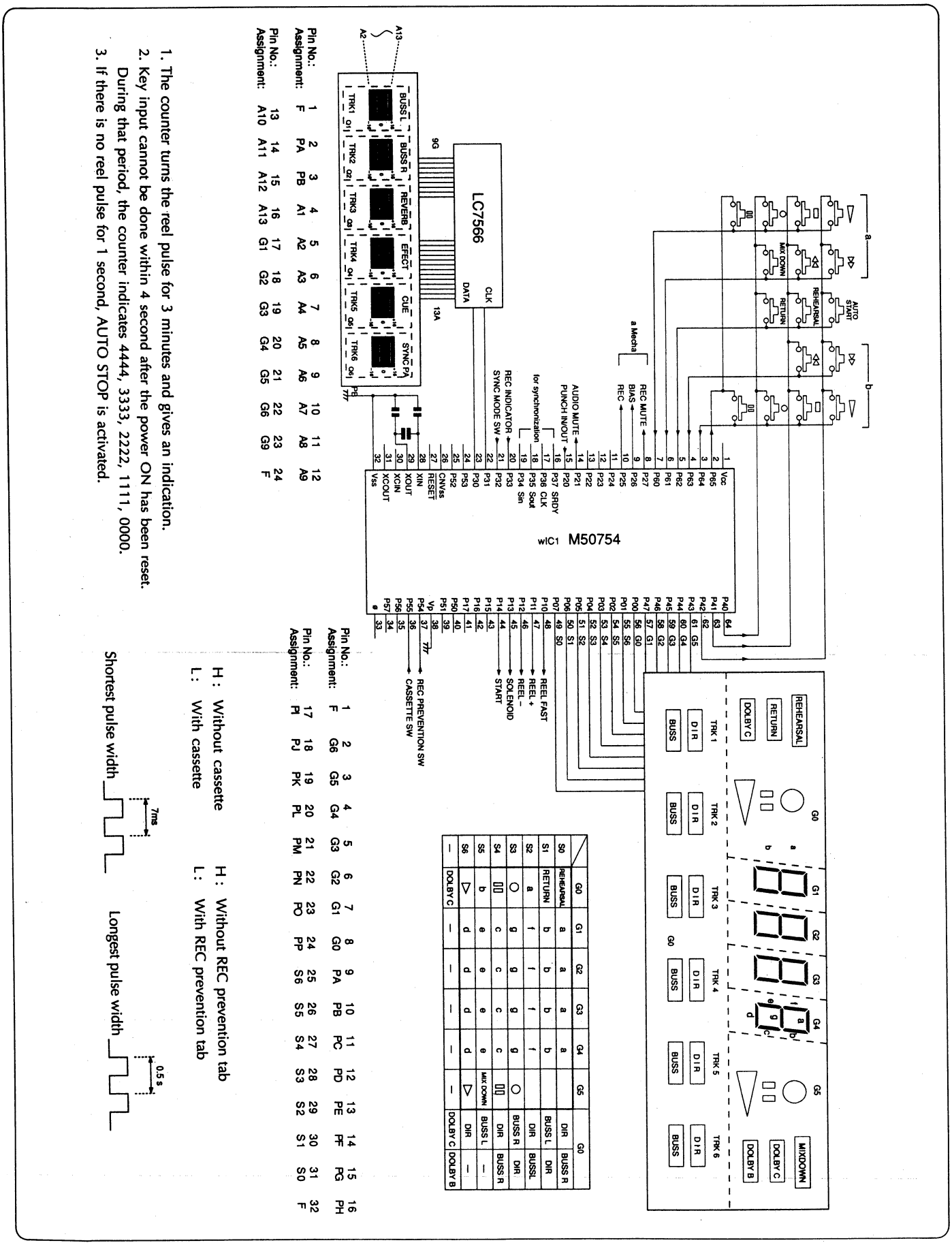


2. BLOCK DIAGRAM

2-1. SYNC Section



2-2. Control Section

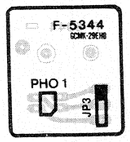


1. The counter turns the reel pulse for 3 minutes and gives an indication.
2. Key input cannot be done within 4 second after the power ON has been reset.
   During that period, the counter indicates 4444, 3333, 2222, 1111, 0000.
3. If there is no reel pulse for 1 second, AUTO STOP is activated.

3. PARTS LOCATION ON BOARD

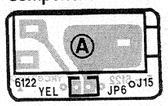
3-1. F-5344 Photo Coupler Board

Component Side



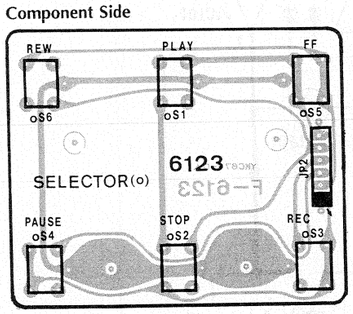
3-2. F-6122 PUNCH IN/OUT Jack Board

Component Side



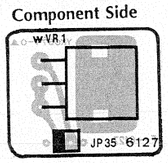
3-3. F-6123 Control Switch Board

Component Side



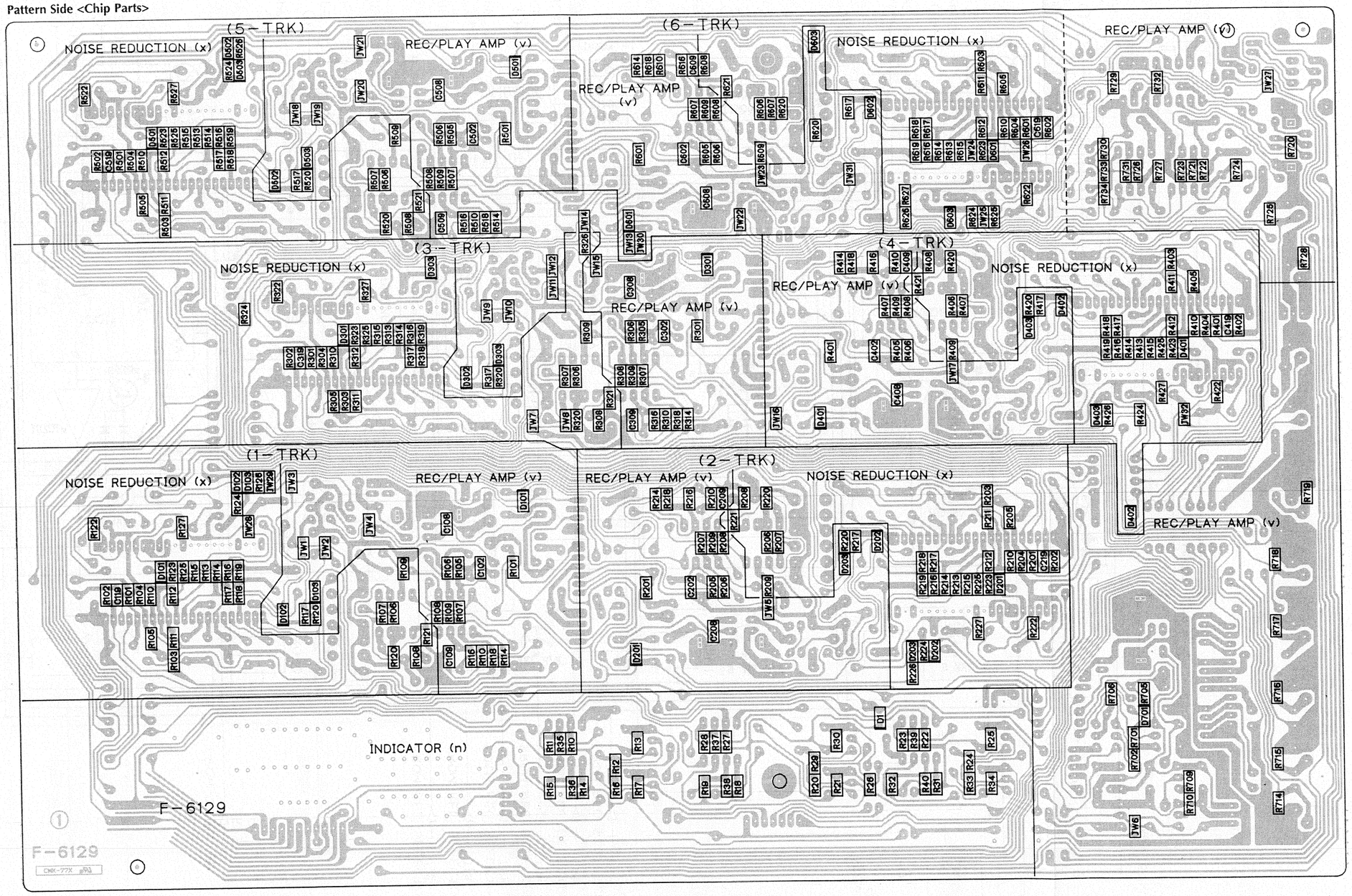
3-4. F-6127 PITCH Control Volume Board

Component Side

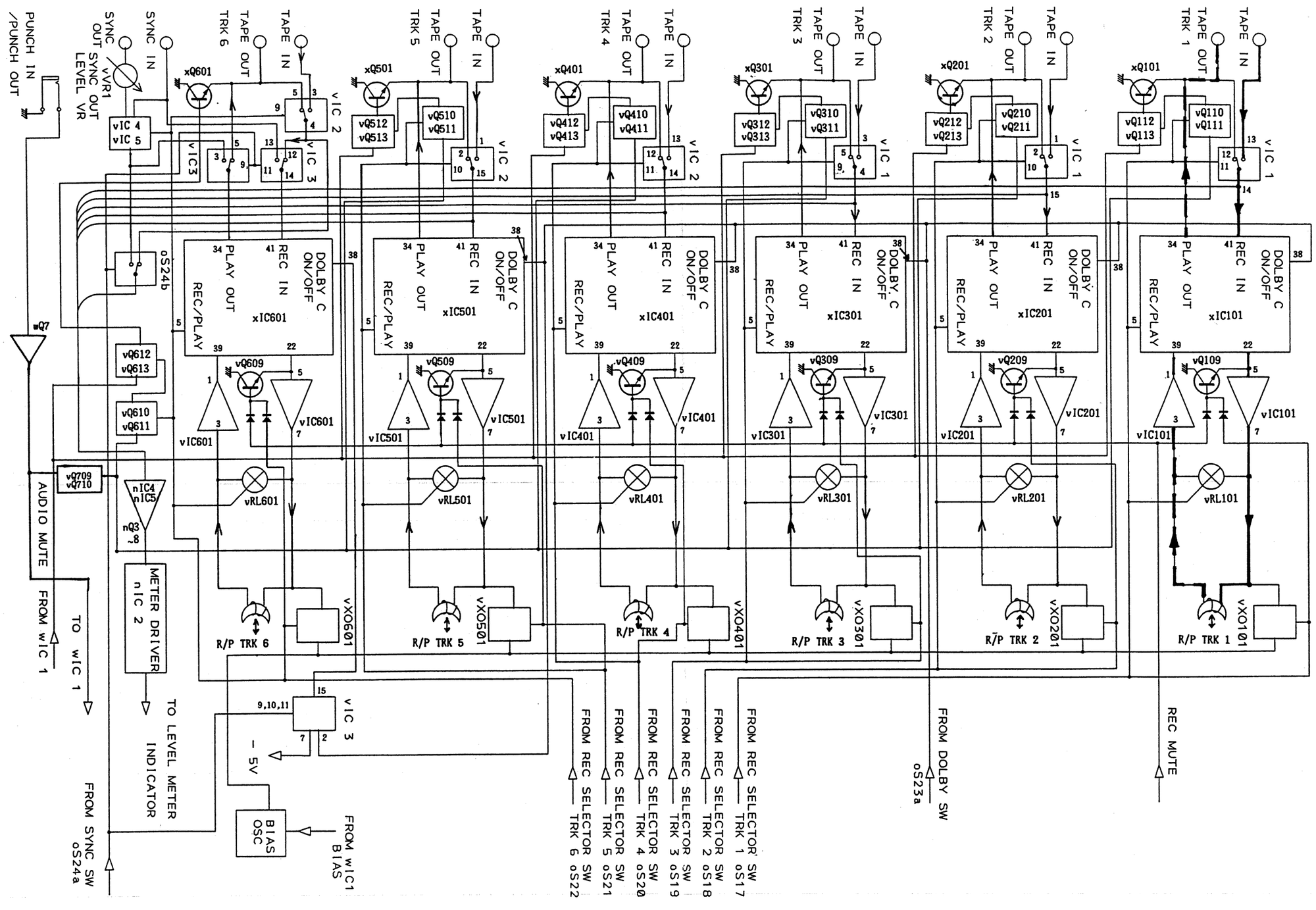


3-5. F-6129 Main Board

Pattern Side <Chip Parts>

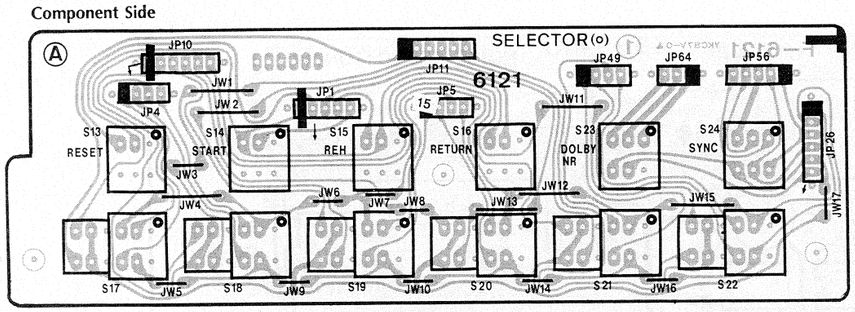


2-3. Audio Section



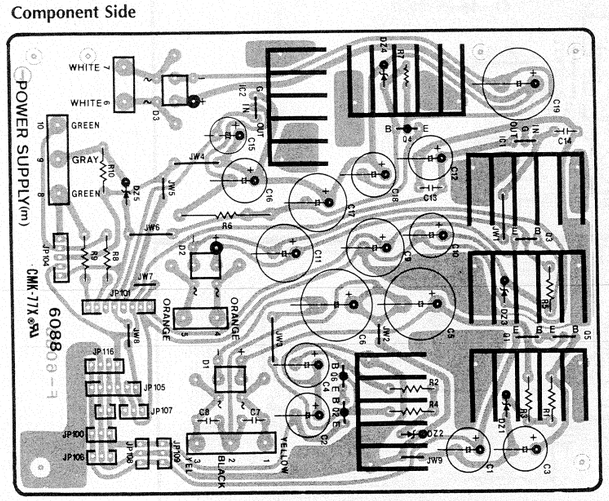
3-7. F-6121 TRK and Accessory Switch Board

Component Side



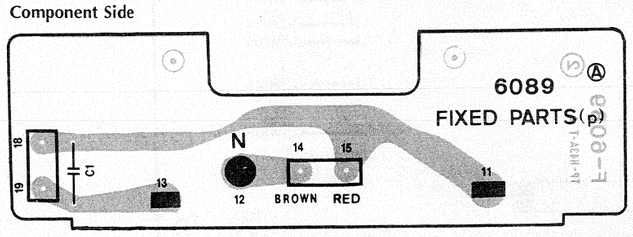
3-8. F-6088 Power Supply Board

Component Side



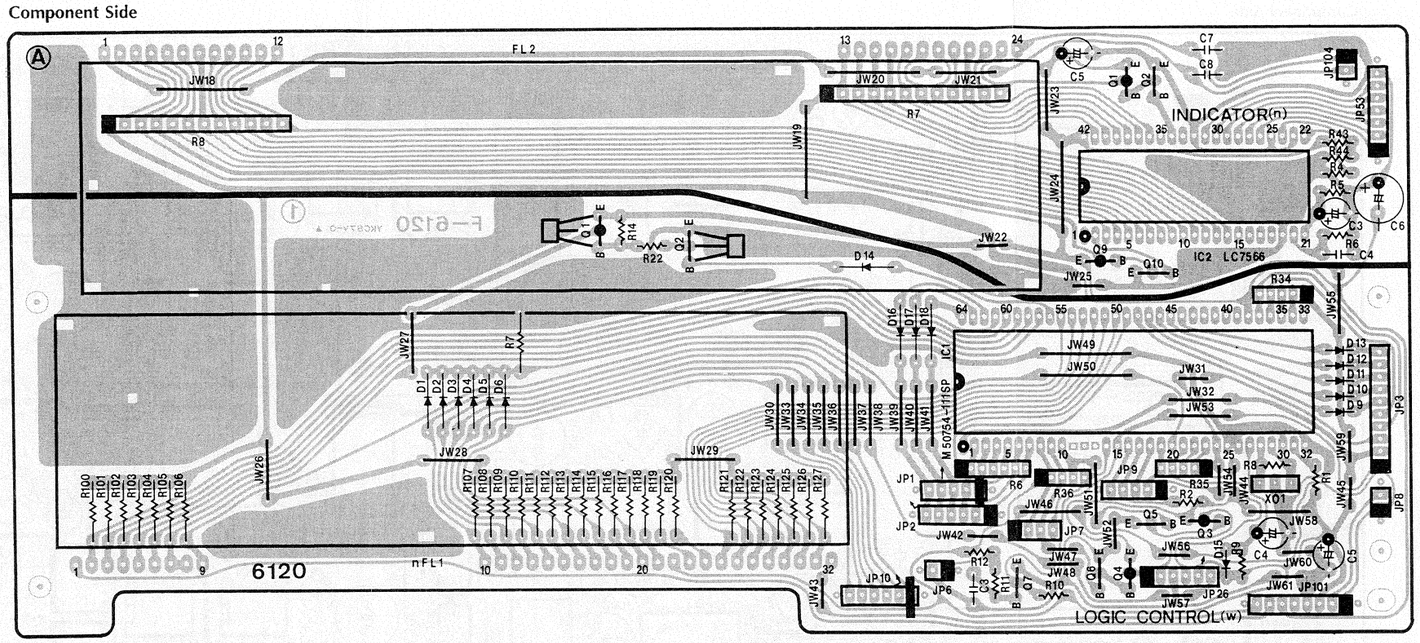
3-9. F-6089 Spark Noise Canceller Board

Component Side



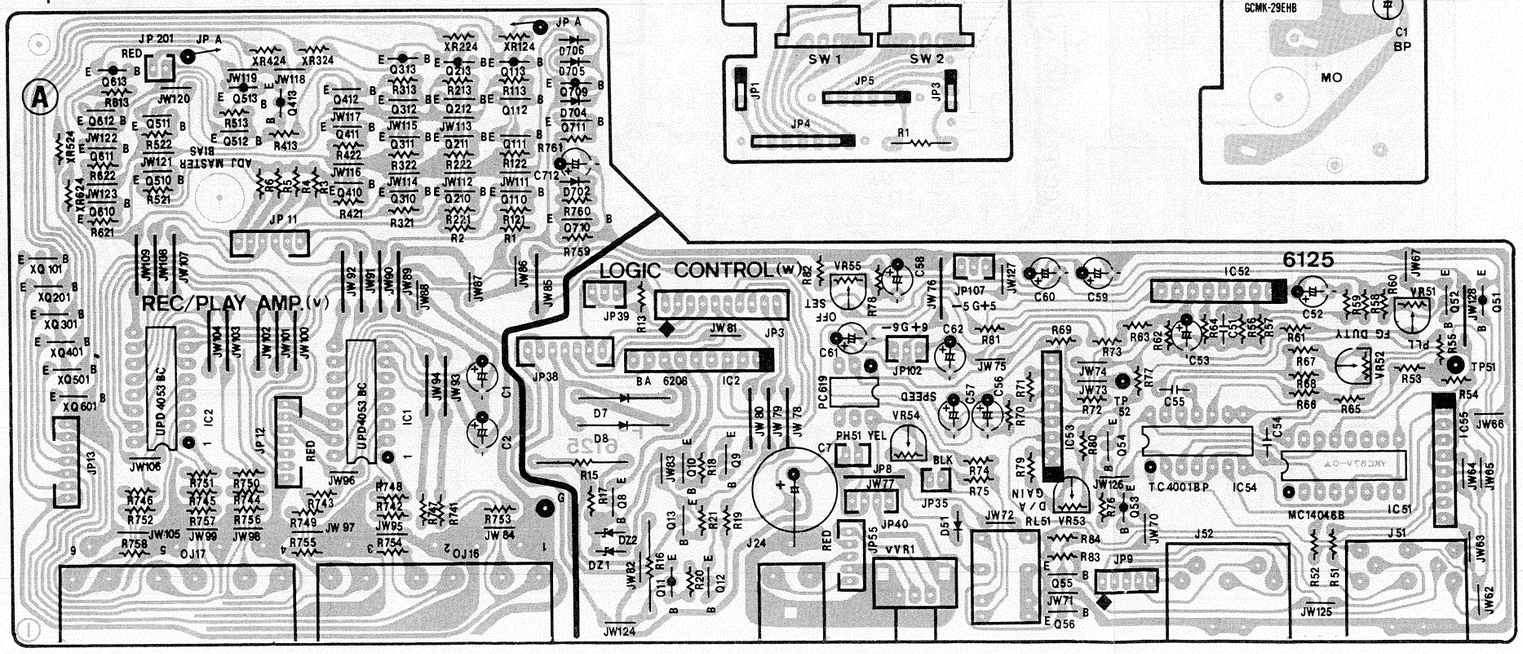
3-10. F-6120 Control IC and Level Meter Board

Component Side



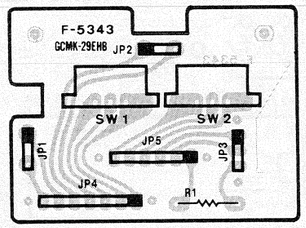
3-11. F-6125 Logic Control and Terminal Board

Component Side



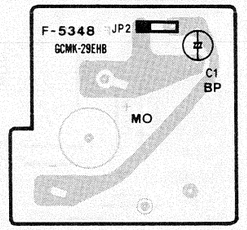
3-12. F-5343 Tape Selector Board

Component Side



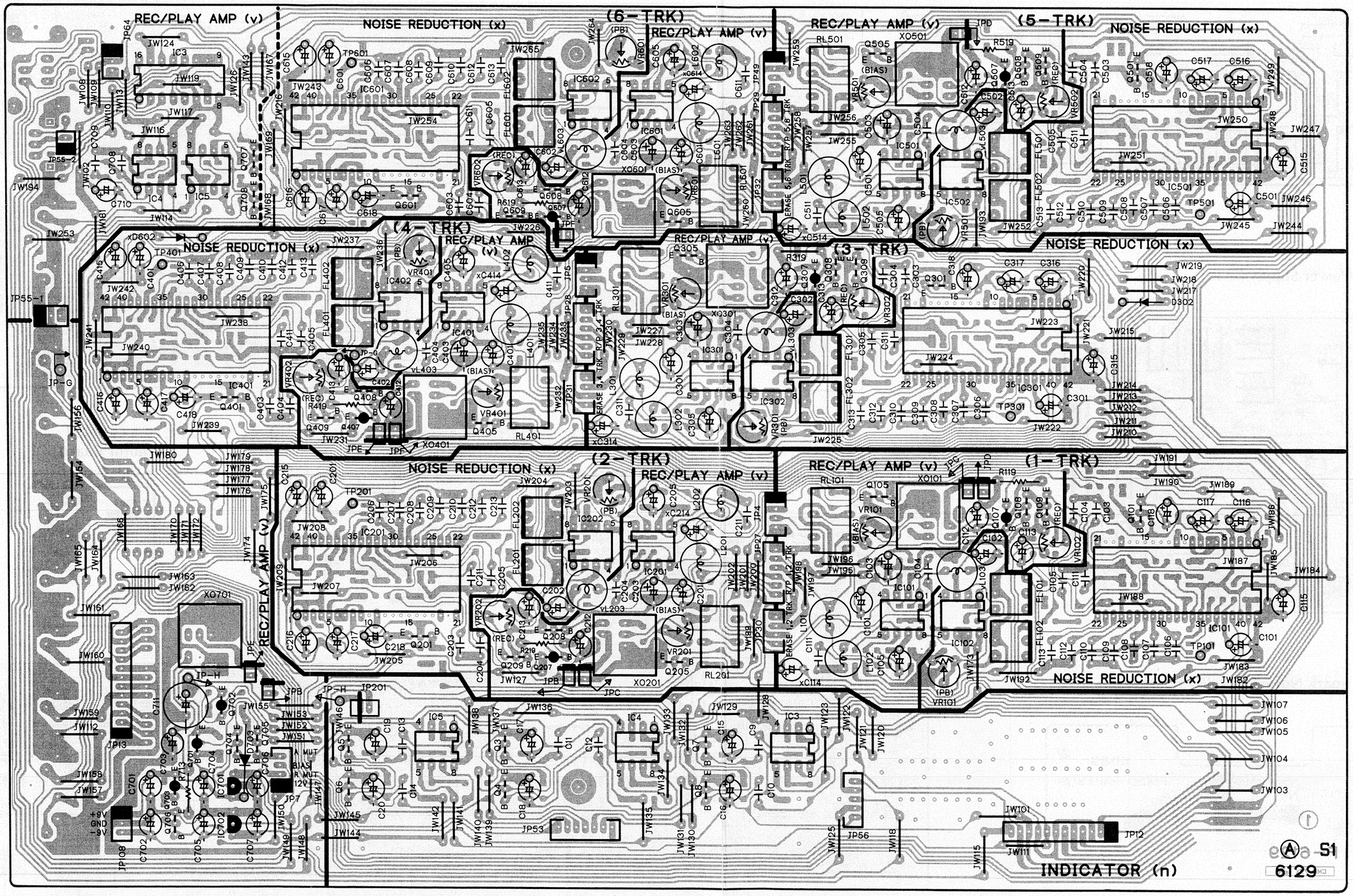
3-13. F-5348 Reel Motor Board

Component Side



3-6. F-6129 Main Board

Component Side



4. PARTS LIST OF BOARD

NOTICE

1. Some printed circuit board are not supplied assembled. To separate these in this Service Manual the stock numbers are not indicated for these boards. However, stock numbers for indivisual parts are indicated.
2. Since some capacitors and resistors are omitted from parts lists in this Parts List, refer to the Common Parts List for capacitors and resistors, which was issued on June 1987.
3. Abbreviations in this Parts List are as follows.

F.R.	: Fusing Resistor	M.M.C.	: Metalized Mylar Capacitor
N.I.R.	: Non-Inflammable Resistor	A.C.	: Array Capacitor
A.R.	: Array Resistor	V.R.	: Variable Resistor
C.C.	: Ceramic Capacitor	S.V.R.	: Semi Variable Resistor
E.C.	: Elecrolytic Capacitor	SW.	: Switch

4-1. F-6088 Power Supply Board

<Stock No. 01155201>

Parts No.		Stock No.	Description
•Transistor			
⚠ mQ1		48508801	2SC3851
⚠ mQ2		48509101	2SA1488
⚠ mQ3		48508801	2SC3851
mQ4		48509101	2SA1488
mQ5		46367101	2SC2603
mQ6		46367001	2SA1115
•IC			
⚠ mIC1		07183500	µPC78M05H
⚠	or	49440400	NJM78M05FA
⚠ mIC2		49311500	µPC79M05H
⚠	or	49435200	NJM79M05FA
•Diode			
⚠ mD1		46273600	DBB10B
⚠ mD2		46273600	DBB10B
⚠ mD3		46273600	DBB10B
•Zener Diode			
⚠ mDZ1		48554600	MTZ11B
⚠	or	48634000	RD11B2 ES
⚠ mDZ2		48554600	MTZ11B
⚠	or	48634000	RD11B2 ES
⚠ mDZ3		48555200	MTZ13B
⚠	or	48634800	RD13B2 ES
⚠ mDZ4		48558100	MTZ30C
⚠	or	48638400	RD30B3 ES
⚠ mDZ5		48552400	MTZ5.6B
⚠	or	48631200	RD5.6B2 ES
mR6		46624800	270Ω 2W N.I.R.
⚠ mR8, 9		46401400	3.3Ω 1/2W N.I.R.
⚠ mR10		46404900	2.7kΩ 1/2W N.I.R.
mC1		49437500	1000µF 10V E.C.
mC5		49369600	2200µF 25V E.C.
mC6		49369600	2200µF 25V E.C.
mC11		49369400	1000µF 35V E.C.
mC13		48748400	0.1µF 50V C.C.
mC14		48748400	0.1µF 50V C.C.

4-2. F-6089 Spark Noise Canceller Board

Parts No.	Stock No.	Description
⚠ pC1	46943200	0.01µF 400V C.C.

4-3. F-6120 Control IC and Level Meter Board

<Stock No. 01154201>

Parts No.		Stock No.	Description
•Transistor			
nQ1		48230000	DTA143XS
nQ2		48230200	DTC124XS
nQ9		48230000	DTA143XS
nQ10		48230200	DTC124XS
•IC			
nIC2		49373300	LC7566
nFL1		49360500	FL. Display Tube CPR5372GM
nFL2		49360400	FL. Display Tube CPR1092GM
nR7		49361900	100kΩx11 A.R.
nR8		49361900	100kΩx11 A.R.
nC7		48748400	0.1µF 50V C.C.
nC8		48748400	0.1µF 50V C.C.
•Transistor			
wQ1		46367001	2SA1115
	or	48058601	2SA 933S
wQ2		48230200	DTC124XS
wQ3		48230000	DTA143XS
wQ4		48230000	DTA143XS
wQ5		48230200	DTC124XS
wQ6		48230200	DTC124XS
wQ7		46367101	2SC2603
	or	48058801	2SC1740S
•IC			
wIC1		49371400	M50754-111SP
wXO1		49334900	Quartz Element CST4.00MGW
•Diode			
wD1~6		46464100	1SS133
wD9~18		46464100	1SS133
wR6		48769500	4.7kΩx6 A.R.
wR34		48765800	4.7kΩx4 A.R.
wR35		48765800	4.7kΩx4 A.R.
wR36		48765800	4.7kΩx4 A.R.

4-4. F-6122 PUNCH Jack Board

Parts No.	Stock No.	Description
oJ15	49360800	Jack

4-5. F-6121 TRK and Accessory Switch Board

Parts No.	Stock No.	Description
oS13	49439100	Push SW., COUNTER RESET
oS14	49439100	Push SW., START
oS15	49439100	Push SW., REHEARSAL
oS16	49439100	Push SW., RETURN
oS17	49439000	Push SW., TRK 1
oS18	49439000	Push SW., TRK 2
oS19	49439000	Push SW., TRK 3
oS20	49439000	Push SW., TRK 4
oS21	49439000	Push SW., TRK 5
oS22	49439000	Push SW., TRK 6
oS23	49367800	Push SW., DOLBY C
oS24	49367800	Push SW., SYNC

4-6. F-6123 Control Switch Board

Parts No.	Stock No.	Description
oS1	49250300	Push SW., PLAY
oS2	49250300	Push SW., STOP
oS3	49250300	Push SW., REC
oS4	49250300	Push SW., PAUSE
oS5	49250300	Push SW., FF
oS6	49250300	Push SW., REW

4-7. F-6125 Logic Control and Terminal Board

<Stock No. 01154701>

Parts No.	Stock No.	Description
oJ51	46852400	DIN Jack, SLAVE-2
oJ52	49361100	DIN Jack, SLAVE-1
oJ16	48528600	6P Terminal, TAPE 1, 2, 3
oJ17	48528600	6P Terminal, TAPE 4, 5, 6
oJ24	48528100	2P Terminal, SYNC IN/OUT
•Transistor		
vQ110	46367101	2SC2603
or	48058801	2SC1740S
vQ111	46367101	2SC2603
or	48058801	2SC1740S
vQ112	46367101	2SC2603
or	48058801	2SC1740S
vQ113	48229600	DTA114ES
vQ709	48229600	DTA114ES
vQ710	48223100	DTC114TS
vQ711	46367101	2SC2603
or	48058801	2SC1740S
•IC		
vIC1	48353100	µPD4053BC
vIC2	48353100	µPD4053BC
•Diode		
vD702	46464100	1SS133
vVR1	49370300	10kΩ (A) V.R., SYNC Output Level
•Transistor		
wQ8	46614101	2SC3243
wQ9	48230200	DTC124XS
wQ10	46367101	2SC2603
or	48058801	2SC1740S
wQ11	46359701	2SA 952
wQ12	46367101	2SC2603
or	48058801	2SC1740S

<F-6125>

Parts No.	Stock No.	Description
wQ13	46359801	2SC2001
wQ51	48183400	DTA114YS
wQ52	48223100	DTC114TS
wQ53	48183400	DTA114YS
wQ54	48223100	DTC114TS
wQ55	48171600	DTC114YS
wQ56	48171600	DTC114YS
•IC		
wIC2	46149600	BA6208
wIC51	49373400	MC14046BCP
or	49373500	HEF4046B
wIC52	46078900	M5218L
or	49472700	NJM4558L-DX
wIC53	46078900	M5218L
or	49472700	NJM4558L-DX
wIC54	46443800	µPD4001BC
wIC55	46147700	M5218L
or	49439500	NJM4558L
•Diode		
wD7	03117700	10E-2
wD8	03117700	10E-2
wD51	46464100	1SS133
•Zener Diode		
wDZ1	48552100	MTZ5.1B
or	48630800	RD5.1B2 ES
wDZ2	48552900	MTZ6.8A
or	48631900	RD6.8B1 ES
wPH51	49373800	Photo COUPLER PC619
⚠ wR15	46241700	27Ω 1W N.I.R.
⚠ wR16	46242300	82Ω 1W N.I.R.
wVR51	46634300	10kΩ S.V.R., PLL Gain
wVR52	46634700	47kΩ S.V.R., Duty cycle
wVR53	46634900	100kΩ S.V.R.,DAC Gain
wVR54	46634300	10kΩ S.V.R., Tape Speed
wVR55	46634300	10kΩ S.V.R., Offset
wRL51	49391800	Relay
•Transistor		
xQ101, 201, 301, 401, 501, 601	46367101	2SC2603
or	48058801	2SC1740S

4-8. F-6127 PITCH Control Volume Board

Parts No.	Stock No.	Description
wVR1	49373600	5KΩ (B) V.R.,

4-9. F-6129 Main Board

<Stock No. 01155101>

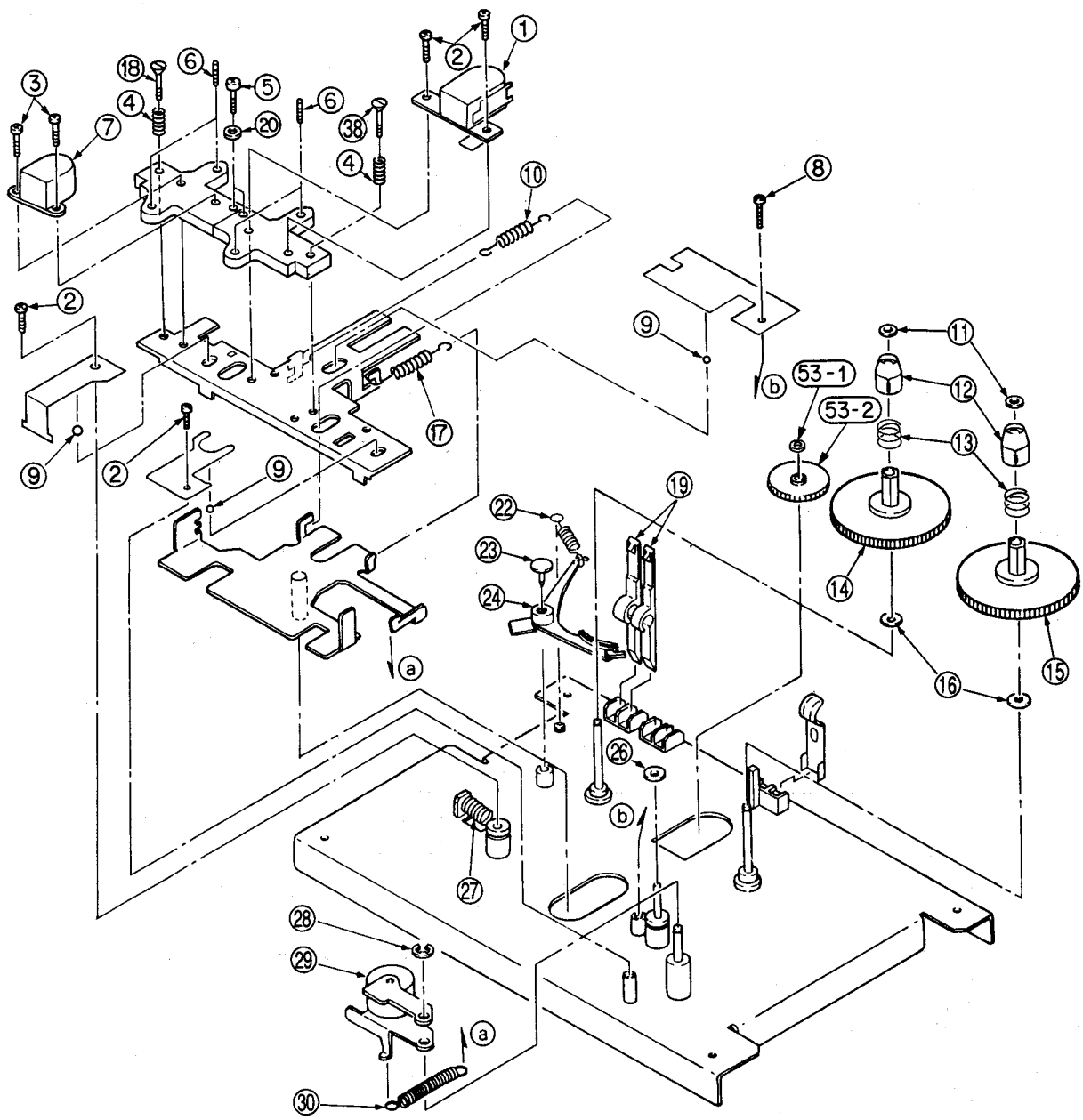
Parts No.	Stock No.	Description
•Transistor		
nQ3~8	46367101	2SC2603
or	48058801	2SC1740S
•IC		
nIC3	07208900	NJM4558D-X
or	46673800	M5218P
nIC4	07208900	NJM4558D-X
or	46673800	M5218P
nIC5	07208900	NJM4558D-X
or	46673800	M5218P
•Diode		
nD1	46852000	RLS-73
•Transistor		
vQ105, 205, 305, 405, 505, 605	48230200	DTC124XS
vQ107, 207, 307, 407, 507, 607	48230000	DTA143XS
vQ108, 208, 308, 408, 508, 608	48230200	DTC124XS
vQ109, 209, 309, 409, 509, 609	46367101	2SC2603
or	48058801	2SC1740S
vQ701	46367001	2SA1115
or	48058601	2SA933S
vQ702	46367001	2SA1115
or	48058601	2SA933S
vQ703	46367001	2SA1115
or	48058601	2SA933S
vQ704	48171600	DTC114YS
vQ705	48171600	DTC114YS
vQ706	48171600	DTC114YS
vQ707	48223100	DTC114TS
vQ708	48223100	DTC114TS
•IC		
vIC3	48353100	µPD4053BC
vIC4	07208900	NJM4558D-X
or	46673800	M5218P
vIC5	07208900	NJM4558D-X
or	46673800	M5218P
vIC101, 201, 301, 401, 501, 601	46638700	M5220P
or	49264000	NJM2068D-D
⚠ vIC701	46148600	NJM78L05A
⚠ or	48469000	µPC78L05J
⚠ vIC702	46544000	NJM79L05A
⚠ or	49391300	µPC79L05J
•Diode		
vD101, 201, 301, 401, 501, 601	46852000	RLS-73
vD102, 202, 302, 402, 502, 602	46852000	RLS-73
vD103, 203, 303, 403, 503, 603	46852000	RLS-73
vD701	46852000	RLS-73

<F-6129>

Parts No.	Stock No.	Description
⚠ vR119, 219, ⚠ 319, 419, ⚠ 519, 619	46681300	10Ω 1/4W F.R.
⚠ vR713	46681300	10Ω 1/4W F.R.
vC709	48480000	0.47µF 63V M.M.C.
vXO101, 201, 301, 401, 501, 601	49373000	OSC BLOCK BO11BF
vXO701	49372900	OSC BLOCK BO-11
vL101, 201, 301, 401, 501, 601	42904400	Peaking Coil
vL102, 202, 302, 402, 502, 602	48121500	2.7MH Inductor
vL103, 203, 303, 403, 503, 603	42904400	Peaking Coil
vVR101, 201, 301, 401, 501, 601	46634900	100kΩ S.V.R., Bias adj.
vVR102, 202, 302, 402, 502, 602	46634300	10kΩ S.V.R., REC Level
vRL101, 201, 301, 401, 501, 601	49391800	Relay
•IC		
xIC101, 201, 301, 401, 501, 601	49361700	CX20188
xIC102, 202, 302, 402, 502, 602	07208900	NJM4558D-X
or	46673800	M5218P
•Diode		
xD101, 201, 301, 401, 501, 601	46852000	RLS-73
xC106, 206, 306, 406, 506, 606	48480000	0.47µF 63V M.M.C.
xFL101, 201, 301, 401, 501, 601	46948101	DOLBY Filter
xFL102, 202, 302, 402, 502, 602	46948101	DOLBY Filter
xVR101, 201, 301, 401, 501, 601	46634100	4.7kΩ S.V.R., PB. Level

5. EXPLODED VIEW OF MECHANISM ASS'Y & PARTS LIST

Front View of Mechanism Chassis

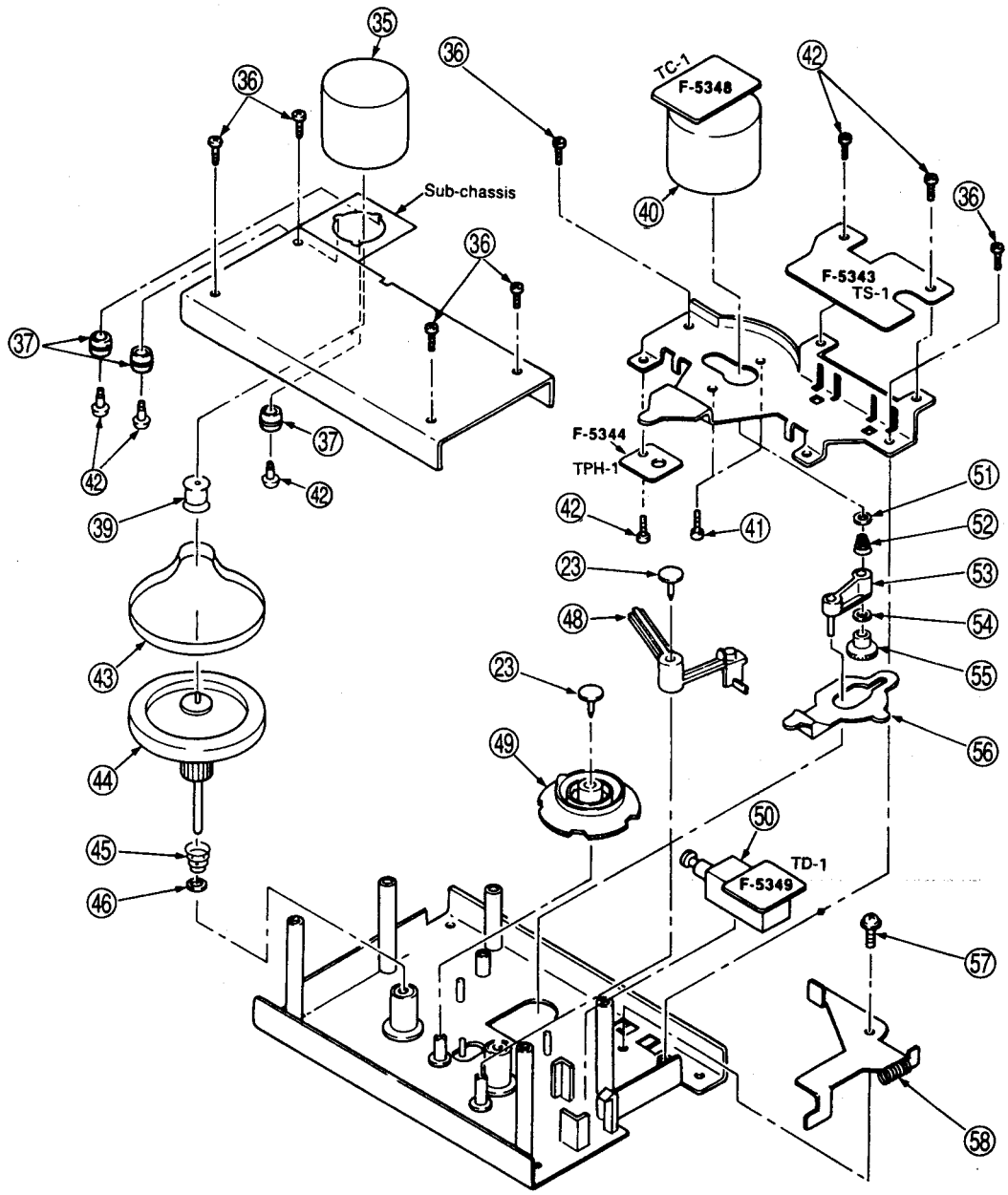


Parts List <Front & Rear View>

Parts No.	Stock No.	Description
1	49358500	Rec and Playback Head
2	00423900	Bind Head Screw, M2x4
3	00424000	Screw, M2x4
4	27119310	Spring, azimuth
5	27127300	Screw, 2x8 (Ⓢare Azimuth)
6	27127400	Screw, M2x5
7	49358600	Erase Head
8	00420900	Bind Head Screw, M2x12
9	47404900	Steel Ball
10	27183600	Spring, head base-L
11	27083100	Washer, 1.6
12	27122710	Sprocket
13	27122610	Spring, reel gear
14	27705500	Reel Gear

Parts No.	Stock No.	Description
15	27705600	Reel Gear (TU)
16	27182900	Washer
17	27126900	Spring, head base-R
18	27665500	Pin Screw-B
19	27763800	Switch Arm (A)
20	00466000	Washer, 2ø
22	27119130	Spring, brake
23	47420900	Plastic Tack
24	27119810	Brake Arm
26	47404700	Nylon Washer, D2.5
27	47668600	Spring, plunger solenoide
28	00489000	E Type Washer, D=2
29	27126700	Pinch Roller Ass'y (TU)
30	27119200	Spring, pinch roller (TU)

Rear View of Mechanism Chassis



Parts No.	Stock No.	Description
35	16529301	Capstan Motor Ass'y
36	00449100	Pan Head Screw, M3x6
37	27459800	Bushing
38	27665400	Pin Screw-A
39	47897100	Pulley
40	46737500	Reel Motor
41	48371600	Bind Head Screw, M2.6x3
42	00421200	Bind Head Screw, M2.6x4
43	27673200	Belt
44	27665000	Flywheel (TU) Ass'y
45	47530000	Spring, flywheel
46	47404600	Washer, 2.5x4
48	27770000	Lock Arm (A)
49	47283840	Assist Gear (A)

Parts No.	Stock No.	Description
50	47292610	Plunger Solenoid
51	47497100	Washer
52	47530000	Spring
53	27230100	Arm A2 Ass'y
53-1	47404800	Slit Washer, 1.6x3.5
53-2	27230200	Idler Gear
54	27126500	Spacer
55	27230300	Reel Motor Gear
56	47293810	Arm (B)
57	46731200	Flanged Tapping Screw, M2.6x8
58	47644500	Spring, eject
TC-1	48100200	1μ 50V E.B., F-5348
TS-1	48368200	Push SW., F-5343
TD-1	03111600	Diode 1S2473, F-5349
TPH-1	49356100	Photo Coupler, F-5344

6. ADJUSTMENT

Remove the bonnet to carry out these adjustments (see Replaeement on page 16).

Notes on the Tape Decks
This unit is a 6-track one-way record/play deck with a tape speed of 9.5 cm/sec, which is twice that of ordinary cassette recorders. Therefore, take care in the following.

* **This unit has been designed exclusively for use with C-60 High-position tapes.**
  Do not use normal tapes or "Metal" tapes.
  Do not use C-90 or C-120 cassettes, for they use thin tapes that are stretched easily.
* Due to the one-way recording and doubled tape speed, a C-60 cassette can be used for only 15 minutes of recording or playback.
* This unit is a one-way record/play deck. recording only on one side of a cassette. Do not attempt to record on the other side of a tape by placing it upside down, for this erases the previous recording backward.
* When inserting a cassette in a deck, place it securely by pushing the shell downward so that the front part of the shell is held by the claws on the left and right.
* When inserting a cassette in a deck, place it securely so that the lower sides are locked by the pawls on the left and right.

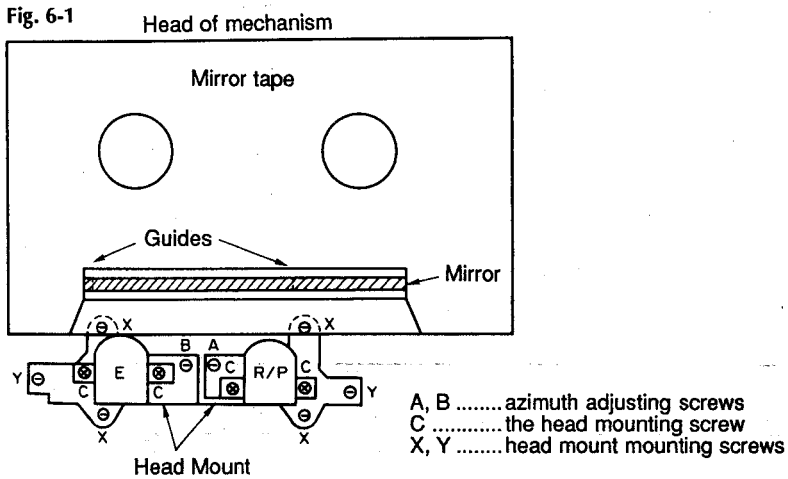
• **List of Sansui Test Tape**

Name of Test Tape	Recorded Frequency	Description	Equivalent To
SCB-FORMAT-1	195.3Hz	SYNC	—
SCB-F12.5kHz	12.5kHz	REC/PB Head Adjustment	—
SCB-L400N	400Hz	PB, Level Check & Level Meter check	—
SCT-S3K	3kHz	Speed Check and Wow & Flutter Check	—
*SCT-SA (HIGH)	—	REC/PB Level Adjustment	TDK SA

• **Note:** Some reference tapes marked * are not supplied.
As these are equivalent to ones indicated above, please obtain these blank tapes on your side as possible.

6-1. Height Adjustment of Mechanism

Fig. 6-1



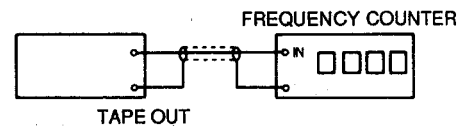
The mounting height is to be adjusted when recording and erase heads are replaced.

1. Play a mirror tape (SONY MC-109, for example) to check if the tape curls at the guides.
2. Check the erase ratio. Use test tape SCT-SA.
   1) Use test tape SCT-SA to over-record a 1kHz signal.
   2) After erasing the tape, check that channels 1 to 6 are between 50 and 60dB. Channels 1 to 6 are to be within 10dB.
3. The height of the head is determined by the azimuth adjuster screws A and B and the head mounting plate screws X and Y. However, if only the head is being replaced, use screw C. When replacing the head, don't touch the X and Y mounting screws. Use the azimuth adjuster screw to check items 1 and 2. Adjust the height using screws Xand Y only if the tape curls or if the erase ratio is too low.
   Adjust the azimuth during playback adjustment, then check the height.

6-2. Speed Adjustment

Conditions:
1. The SCT-S3K tape is required for this adjustment.
2. Carry out connections as shown in Figure 6-2.

Fig. 6-2



1) Speed Adjustment

Set the PITCH control VR (on the panel) to mid position

Step	Item	Input Signal	Output	Setting	Adjustment
1	Speed adjustment	Test tape SCT-S3K	Connect a frequency counter to TAPE OUT 1	Press the PLAY button of mechanism to playback the SCT-S3K tape.	If not 6kHz±30 Hz, adjust using wVR54 on the F-6125 board.

6-3. Playback Adjustment

Conditions:

1. Clean the recording and playback heads before starting adjustments.
2. SCB-F12.5K and SCB-L400N test tapes are required for this adjustment.
3. Set the Dolby switch OFF.
4. Carry out the connections as shown in figure 6-3.

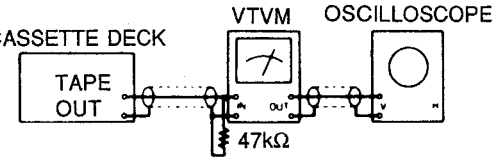


Fig. 6-3

Step	Item	Input Signal	Output	Setting	Adjustment
1	REC/PB head adjustment	SCB-F12.5K	Connect AC voltmeter and oscilloscope to TAPE OUT 1	Press the PLAY button to playback SCB-F12.5K.	Adjust the azimuth adjuster screw as shown in Figure 6-1 to achieve the optimum output. Lock the screw after adjustment.
2	Playback level adjustment 1~6 CH	SCB-L400N	Connect AC voltmeter and oscilloscope to TAPE OUT 1~6 CH	Press the PLAY button to playback SCB-L400N.	Adjust xVR101-601 (F-6129) to achieve an output of 280mV. (See Top View on page 23)

6-4. Recording Adjustment

1) BIAS Adjustment

Use the oscillation circuit and bias adjustment VRs to carry out this adjustment after replacing the recording head.

Conditions:

1. Test tape SCT-SA is required for this adjustment.
2. Set the Dolby switch OFF.

Step	Item	Input Signal	Output	Setting	Adjustment
1	BIAS Frequency adjustment	SCT-SA	Connect an AC voltmeter channel 1 (brown), channel 2 (red) and (GND) of connector JP30, then connect a frequency counter to the AC voltmeter's monitor terminal. (See F-6129)	1. Set channel 1 and 2 TRK switches ON (set OFF after adjustment). 2. Mount the SCT-SA tape in the set. 3. Select RECORD.	1. Adjust the core of the oscillator coil vXO701 (F-6129) to achieve a frequency of 85kHz±1kHz. (See Top View on page 23)
2	Matching transformer adjustment. Channels 1 and 2.	SCT-SA	As above	As above	1. Adjust the core of the matching transformer vXO101 and vXO201 (F-6129) to achieve the maximum voltage on the meter (about 4.5V). (See Top View on page 23)
3	Matching transformer adjustment. Channels 3 and 4.	SCT-SA	Connect channel 3 (orange), channel 4 (yellow) and (GND) of connector JP31 to an AC voltmeter and connect a counter to the AC voltmeter's monitor terminal. (See F-6129)	1. Set channel 3 and 4 TRK switches ON (set OFF after adjustment). 2. Mount an SCT-SA tape in the set. 3. Select RECORD.	1. Adjust the core of the matching transformer vXO301 and vXO401 (F-6129) to achieve the maximum voltage on the meter (about 4.5V). (See Top View on page 23)
4	Matching transformer adjustment. Channels 5 and 6.	SCT-SA	Connect channel 5 (green), channel 6 (blue) and (GND) of connector JP32 to a AC voltmeter and connect a counter to the AC voltmeter's monitor terminal. (See F-6129)	1. Set channel 5 and 6 TRK switches ON (set OFF after adjustment). 2. Mount an SCT-SA tape in the set. 3. Select RECORD.	1. Adjust the core of the matching transformer vXO501 and vXO601 (F-6129) to achieve the maximum voltage on the meter (about 4.5V). (See Top View on page 23)

2) Adjusting Recording Level and Overall Frequency Characteristics

Conditions:

1. Carry out the connections as shown in Figure 6-4.
2. Set the DOLBY switch to position "C".
3. Set all push-switches OFF except TRK switches.

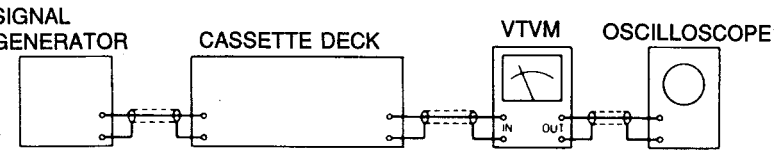


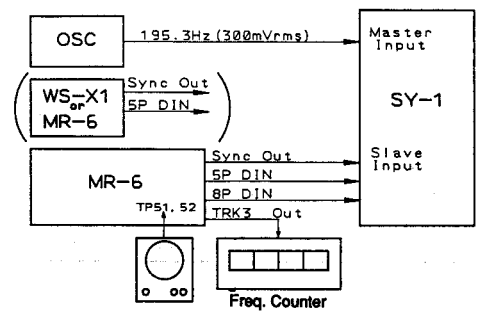
Fig.6-4

Record in pairs using channels 1 and 2, cannels 3 and 4, and channels 5 and 6. Make sure TRK switches 1 and 2, 3 and 4 and 5 and 6 are ON as appropriate.

Step	Item	Input Signal	Output	Setting	Adjustment
1	Recording level adjustment. Tracks 1-6.	Add 1kHz 200mV signal from SG to the TAPE IN 1~6.	Connect AC voltmeter and oscilloscope to TAPE OUT 1-6.	Mount the test tape SCT-SA. 1. Record a 1kHz signal. 2. Play back the recorded signal.	Adjust vVR102-602 F6129 so that the difference between the level of the output signal during recording and the level of the playback signal is 0±1dB (see Top View on page 23).
2	Adjust overall frequency characteristics. Tracks 1-6.	Add 1kHz 15mV signal and 10kHz 15mV signal from SG to the TAPE IN 1~6.	Connect AC voltmeter and oscilloscope to TAPE OUT 1-6.	Mount the test tape SCT-SA. 1. Record a 1kHz signal and 10kHz signal. 2. Play back the recorded signals. Check that the level differential of each is 0±1dB.	If the level difference of 1kHz and 10kHz signals is not 0±1dB, adjust vVR101-601 F-6129 (see Top View on page 23).

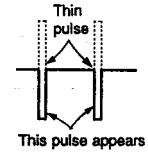
6-5. SYNC Adjustment (Refer to Top View on page 23)

Fig. 6-5



- **Condition:**

1. SCB-FORMAT-1 and SCT-S3K test tape are required for this adjustment.
2. Since the potentiometer wVR54 was over, do not turn it.
3. Set the potentiometer wVR51, wVR52, wVR53 and wVR55 to mechanical center position.
4. Carry out connections as shown in Figure 6-5.
5. Once push the power switch to OFF and push the power switch to ON while pushing the 'FORMAT' button of SY-1 again, so SY-1 changes to adjustment mode.
6. After adjustment, Once push the power switch to OFF and push the power switch to ON again, so SY-1 is released from adjustment mode.

Step	Item	Input Signal	Output	Setting	Adjustment
1.	DUTY Cycle Adj.	SCB-FORMAT-1	Connect an Oscilloscope between test point TP 52 (F-6152) and GND.	1. Mount the SCB-FORMAT-1. 2. Push the PLAY button of SY-1.	Adjust the wVR52 on F-6125 board so that the DUTY cycle is 50 per cent.
2.	Offset Adj.	SCT-S3K	Connect a frequency counter to TAPE OUT-3.	1. Mount the SCT-S3K. 2. Push the REW button of SY-1.	Adjust the wVR55 on F-6125 board so that the tape speed is –10 per cent (Indication of counter is 5400 Hz).
3.	DA Converter Gain Adj.	SCT-S3K	Connect a frequency counter to TAPE OUT-3.	1. Mount the SCT-S3K. 2. Push the FF button of SY-1.	Adjust the wVR53 on F-6125 board so that the tape speed is +10 per cent (Indication of counter is 6600 Hz).
4.	PLL Gain Adj.	SCB-FORMAT-1	Connect an Oscilloscope between test point TP 51 (F-6152) and GND.	1. Mount the SCB-FORMAT-1. 2. Push the PLAY button of SY-1.	 This pulse appears always. Adjust the wVR51 on F-6125 board so that thin pulse sometimes appears as the figure. (Then the other pulse always appears.)

7. MAIN PARTS REPLACEMENT

A. Mechanism Ass'y

1) Remove the left and right side handles.
2) Remove the bonnet.
3) Disconnect the six points on the F-6129 board (JP27, JP28, JP29, JP30, JP31 and JP32) and two points on the F-6125 board (JP38 and JP39).
4) Loosen one screw at back side of the mechanism to remove a washer with earth wire.
5) Remove the front panel ass'y
6) To remove a fixing plate of the mechanism, loosen two screws.
7) Then pull up the plate while spreading the side chassis.
8) Loosen four screws to remove the mechanism

B. Front Panel Ass'y

1) Remove the left and right side handles.
2) Remove the bonnet.
3) Remove the front panel ass'y from the chassis.
4) To remove a mounting plate of the mechanism, loosen two screws.
5) Then pull up the plate while spreading the side portion of the chassis.
6) Remove the F-6121 board, the F-6120 board and F-6123 board.

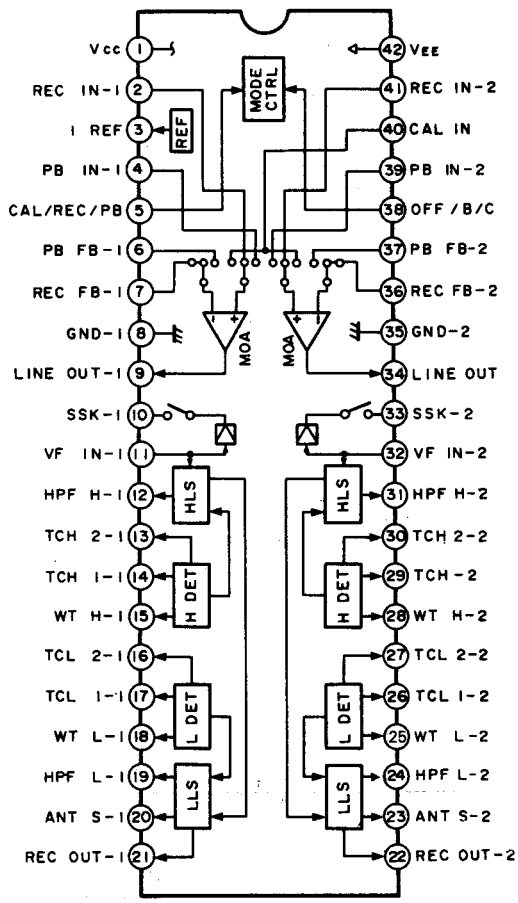
C. F-6129 Main Board

1) Remove the left and right side handles.
2) Remove the bonnet.
3) To remove the F-6125 board, loosen nine screws on the rear panel and unhook three nails on the board with pliers.
4) Undo the six holders of F-6129 board with pliers.

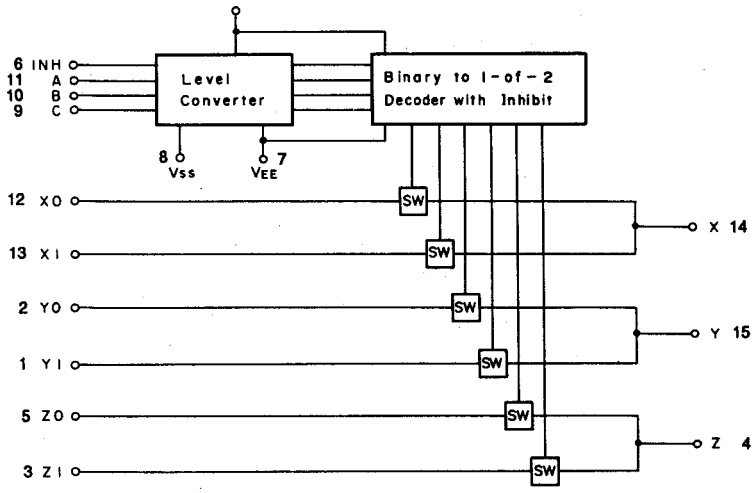
8. INTERIOR BLOCK DIAGRAM & TERMINAL FUNCTION OF IC

• **CX20188 <Dolby Noise Reduction>**

Terminal No.	Terminal Name	Description
1	Vcc	Plus (+) power supply terminal
2, 41	REC IN	Recording input terminal
3	I REF	Reference current input terminal
4, 39	PB IN	Playback input terminal
5	CAL/REC/PB	Calibration/recording/playback switching terminal
6, 37	PB FB	Playback feedback terminal
7, 36	REC FB	Recording feedback terminal
8, 35	GND	No. 2 power supply: GND terminal, No. 1 power supply: Vcc/2 terminal
9, 34	LINE OUT	Line output (decode output) terminal
10, 33	SSK	Spectral skewing switch terminal
11, 32	VF IN	Encode circuit input terminal
12, 31	HPF H	HLS high pass filter terminal
13, 30	TCH 2	HLS cymoscope time constant terminal 2
14, 29	TCH 1	HLS cymoscope time constant terminal 1
15, 28	WT H	HLS weighting terminal
16, 27	TCL 2	LLS cymoscope time constant terminal
17, 26	TCL 1	LLS cymoscope time constant terminal
18, 25	WT L	LLS weighting terminal
19, 24	HPF L	LLS high pass filter terminal
20, 23	ANT S	Anti saturation terminal
21, 22	REC OUT	Recording output (encode output) terminal
38	OFF/B/C	Dolby NR OFF/B type/C type switching terminal
40	CAL IN	Calibration input terminal
42	VEE	No. 2 power supply: minus (-) power supply terminal, No. 1 power supply: GND terminal



• µPD4053L <Multiplexer>

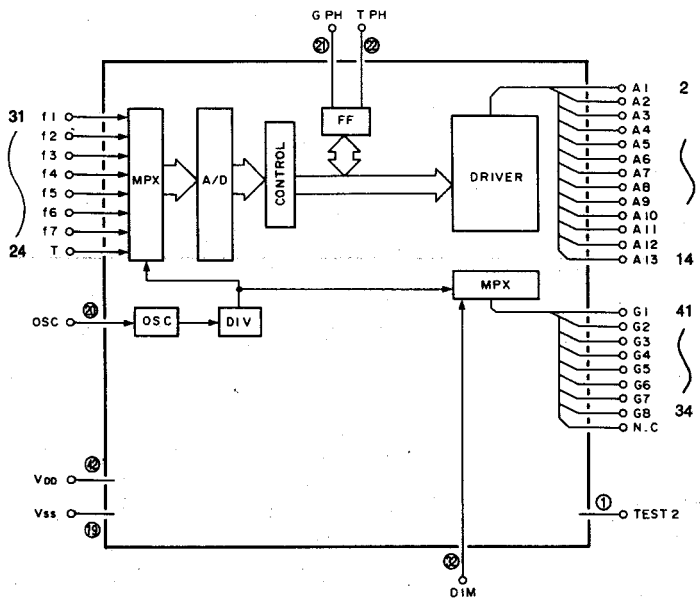


Truth Table

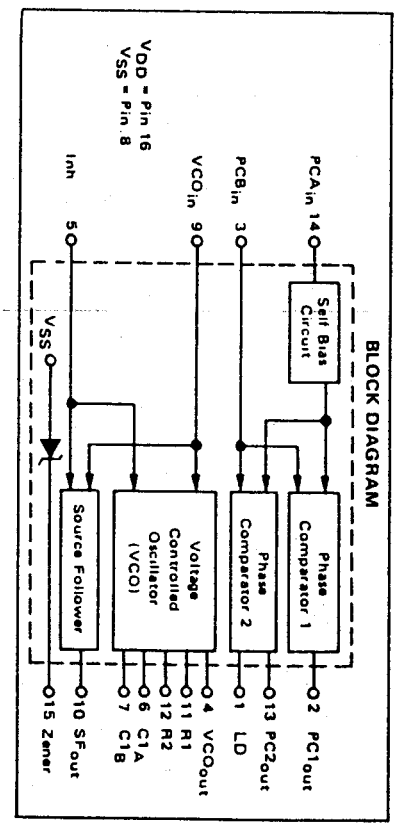
Control Input				"ON" Channel
INHIBIT	C	B	A	
L	L	L	L	Z0, Y0, X0
L	L	L	H	Z0, Y0. X1
L	L	H	L	Z0, Y1, X0
L	L	H	H	Z0, Y1, X1
L	H	L	L	Z1, Y0, X0
L	H	L	H	Z1, Y0, X1
L	H	H	L	Z1, Y1, X0
L	H	H	H	Z1, Y1, X1
H	X	X	X	NONE

H: High level L: Low level X: H or L

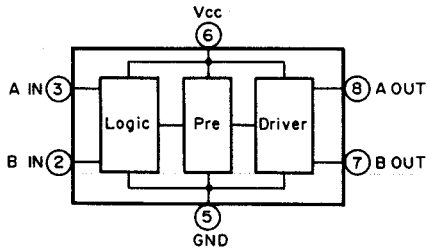
• LC7566 <FL Tube Driver>



• MC14046BC/HEF4046B (PLL)



• BA6208 <Motor Drive>



Input		Output		Output Mode
Input A	Input B	Output A	Output B	
1	1	L	L	Motor Short
1	0	H	L	Normal Turn
0	1	L	H	Reverse Turn
0	0	—	—	Motor Open

1 : More than 2.0V O : Less than 0.8V

9. TIMING CHART OF SYSTEM CONTROL IC, M50754

(1)

A decks: High-speed only B decks: Normal only

		wIC1 Pin No.	STOP → PLAY	STOP → FF (REW)	PLAY → STOP
		a , b			
SOL	H L	45, 40			
START	H L	44, 39	100ms		
REEL (+) <FF>	H L	47, 42	A=110ms B=220ms		
REEL (–) <REW>	H L	46, 41			
REEL FAST	H L	48, 43			
PLAY MUTE	H L	14	A=500ms B=500ms		
REC	H L	10, 13			
REC MUTE	H L	8, 11			
BIAS	H L	9, 12			
FL display			PLAY ON 200ms		PLAY OFF
Notes				Reel plus (+) and minus (–) poles reversed during REVIEW	

(2)

		wIC1 Pin No.	FF (REW) → PLAY	STOP → REC (REC PAUSE)	REC PAUSE → PLAY (REC/PLAY)
		a , b			
SOL	H L	45, 40	200ms		
START	H L	44, 39	100ms		100ms
REEL (+) <FF>	H L	47, 42	A=110ms B=220ms		A=110ms B=220ms
REEL (–) <REW>	H L	46, 41	20ms 40ms		
REEL FAST	H L	48, 43			
PLAY MUTE	H L	14	A=500ms B=500ms		500ms
REC	H L	10, 13			
REC MUTE	H L	8, 11			A=200ms B=300ms
BIAS	H L	9, 12			A=150ms B=250ms
FL display			PLAY ON 200ms	REC ON PAUSE OFF	PLAY and REC remain ON PAUSE OFF
Notes			Reel plus (+) and minus (–) poles reversed during PREVIEW	1. REC switch will not function while H. 2. With A decks, will not function while all REC f nctions are L. REC flashes if eve one is H.	

(3)

		wIC1 Pin No.	PLAY → CUE (REVIEW)	CUE (REVIEW) → PLAY
		a , b		
SOL	H L	45, 40	30ms	200ms
START	H L	44, 39	100ms	100ms
REEL (+) <FF>	H L	47, 42	230ms	A=110ms B=220ms
REEL (–) <REW>	H L	46, 41		20ms 40ms
REEL FAST	H L	48, 43		
PLAY MUTE	H L	14	500ms	A= B= } 500ms
REC	H L	10, 13		
REC MUTE	H L	8, 11		
BIAS	H L	9, 12		
FL display			PLAY ON	PLAY ON 200ms
Notes			Reel plus (+) and minus (–) poles reversed during PREVIEW	Reel plus (+) and minus (–) poles reversed during PREVIEW

* CUE and REVIEW are only available while FF or REW keys are pressed during PLAY. PLAY is resumed when the key s are released.

(4)

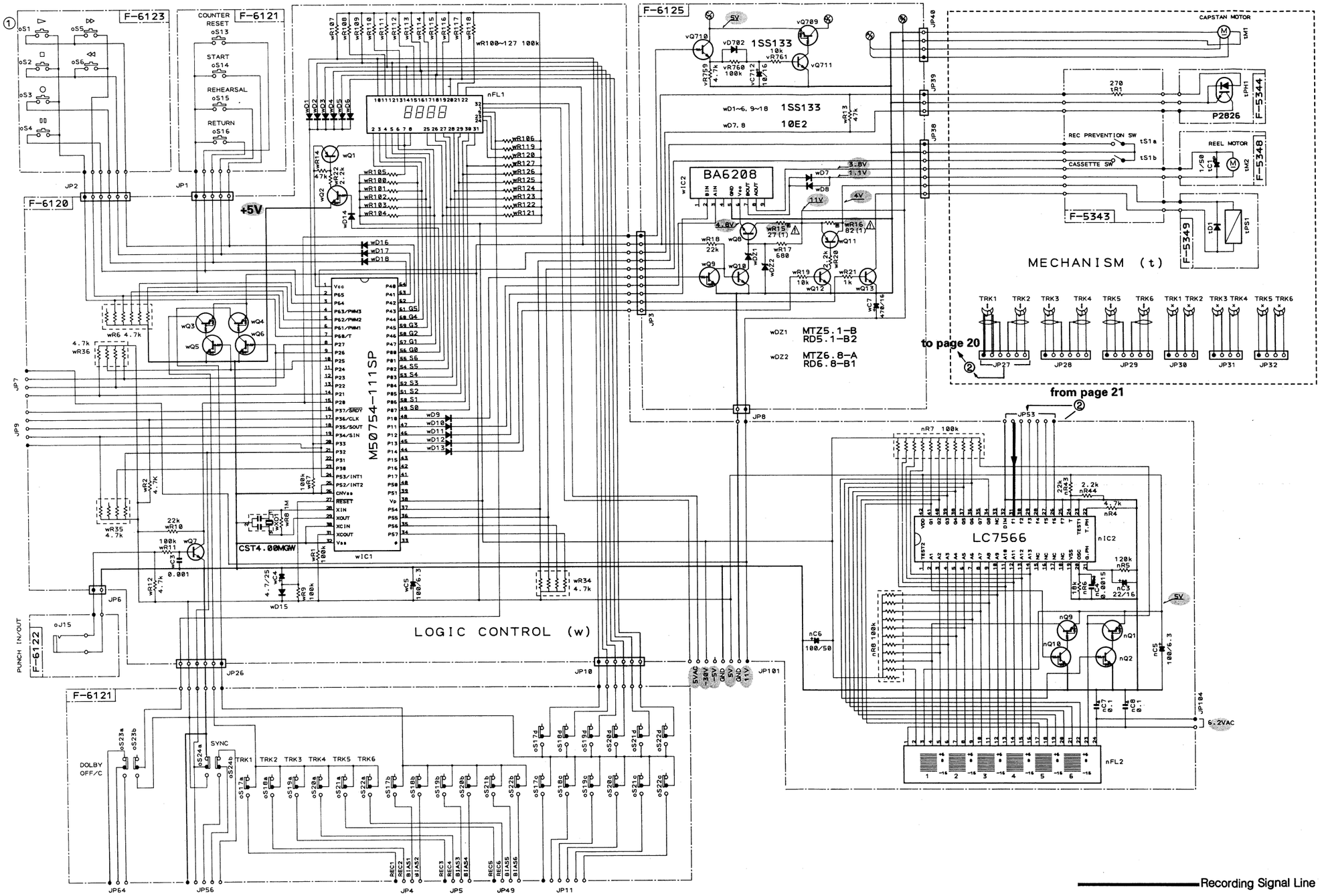
		wIC1 Pin No.	PLAY PAUSE → PLAY	PLAY → REC (Punch-in)	REC → PLAY (Punch-out)
		a , b			
SOL	H L	45, 40			
START	H L	44, 39	100ms		
REEL (+) <FF>	H L	47, 42	A=110ms B=220ms		
REEL (+) <FF>	H L	46, 41			
REEL FAST	H L	48, 43			
PLAY MUTE	H L	14	A=500ms B=500ms	300ms	300ms
REC	H L	10, 13			200ms
REC MUTE	H L	8, 11		200ms	
BIAS	H L	9, 12		50ms	10ms
FL display			PAUSE OFF PLAY remains ON	PLAY remains ON REC changes from flashing to ON (Note: See table 2)	PLAY remains ON REC changes from ON to flashing (Note: See table 2)
Notes				Deck A only	Deck A only

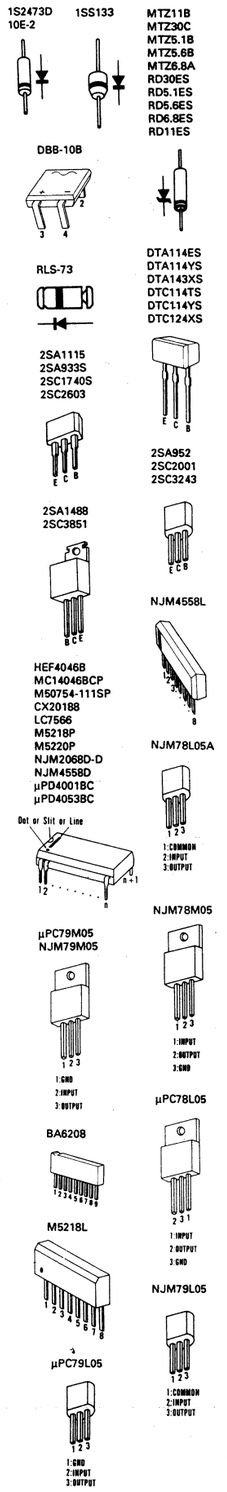
(5)

		wIC1 Pin No.	REC → FF (REW)	FF → REW (REW → FF)	FF → STOP (REW → STOP)
		a , b			
SOL	H L	45, 40			
START	H L	44, 39			
REEL (+) <FF>	H L	47, 42			
REEL (–) <FF>	H L	46, 41	400ms	20ms 40ms 200ms	20ms 40ms
REEL FAST	H L	48, 43			
PLAY MUTE	H L	14			
REC	H L	10, 13	A= B= } 500ms		
REC MUTE	H L	8, 11			
BIAS	H L	9, 12	10ms		
FL display			PAUSE OFF PLAY OFF		
Notes			Reel(+) and (–) poles are reversed during REVIEW	Reel (+) and (–) poles are reversed when switching from REW to FF.	Reel (+) and (–) poles are reversed when switching from REW to STOP.

10. SCHEMATIC DIAGRAM 10-1. Control Section

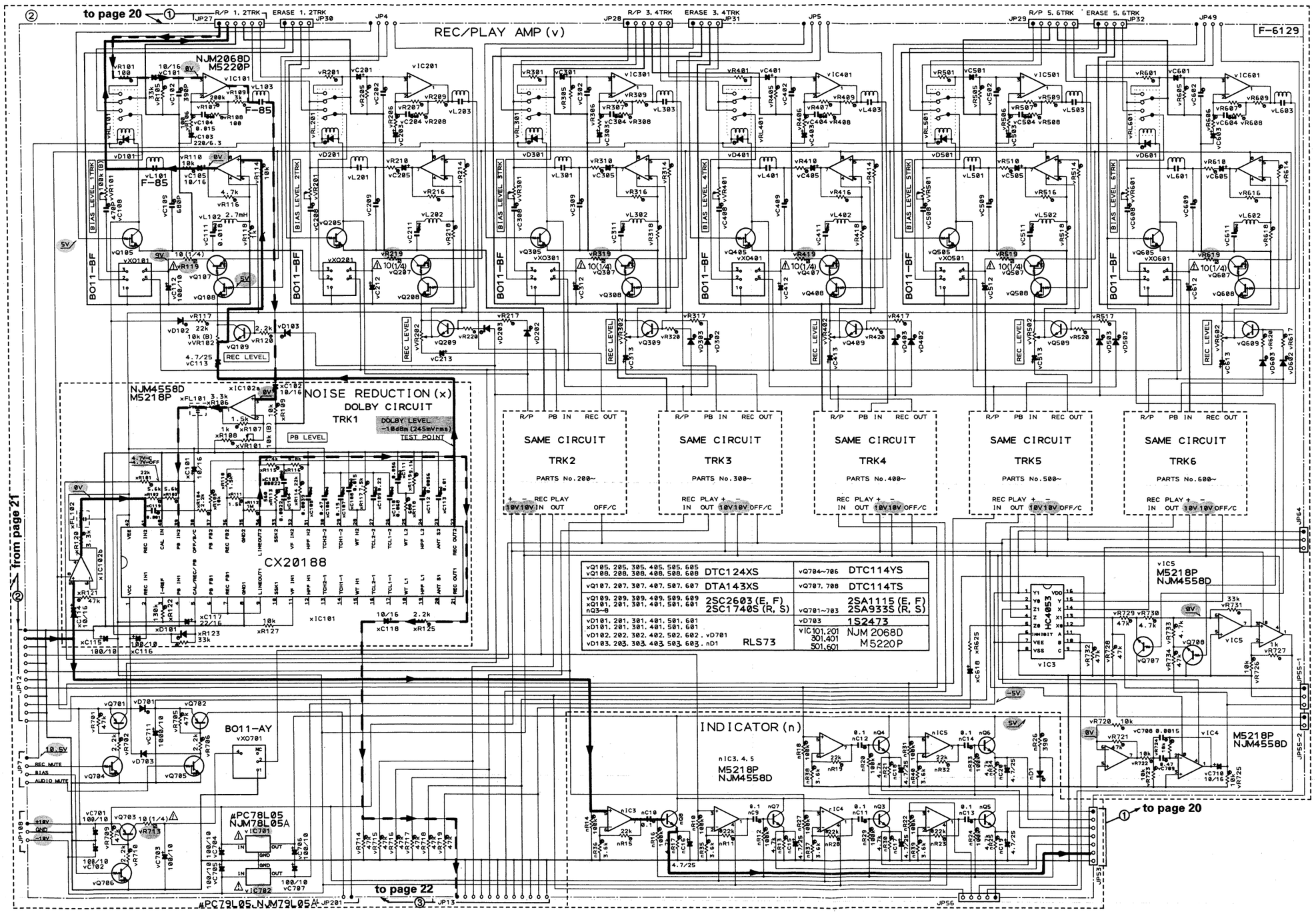
* Design and specifications are subject to changes without noitice for improvements.





10-2. Audio Section

* Design and specifications are subject to changes without noitice for improvements.



1S2473D 10E-2 1SS133

MTZ11B MTZ30C MTZ5.1B MTZ5.6B MTZ6.8A RD30ES RD5.1ES RD5.6ES RD6.8ES RD11ES

DBB-10B

RLS-73

DTA114ES DTA114YS DTA143XS DTC114TS DTC114YS DTC124XS

2SA1115 2SA933S 2SC1740S 2SC2603

2SA952 2SC2001 2SC3243

2SA1488 2SC3851

NJM4558L

HEF4046B MC14046BCP M50754-111SP CX20188 LC7566 M5218P M5220P NJM2068D-D NJM4558D µPD4001BC µPD4053BC

NJM78L05A

Dot or Slit or Line

NJM78M05

µPC79M05 NJM79M05

µPC78L05

BA6208

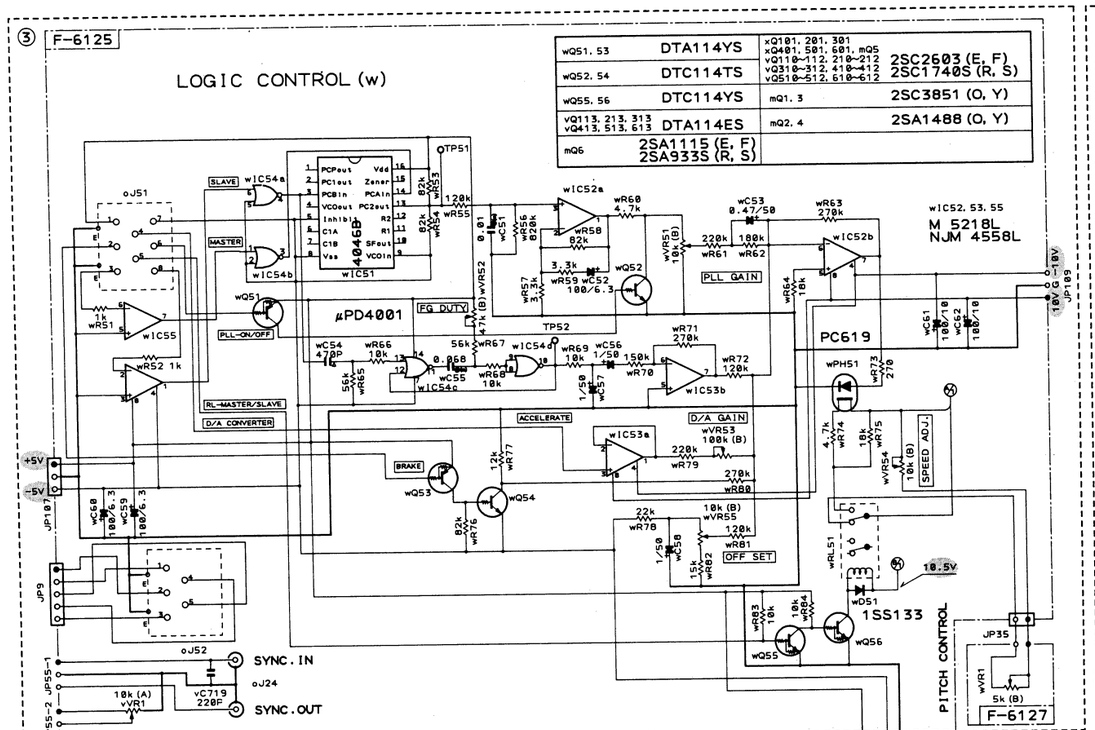
M5218L

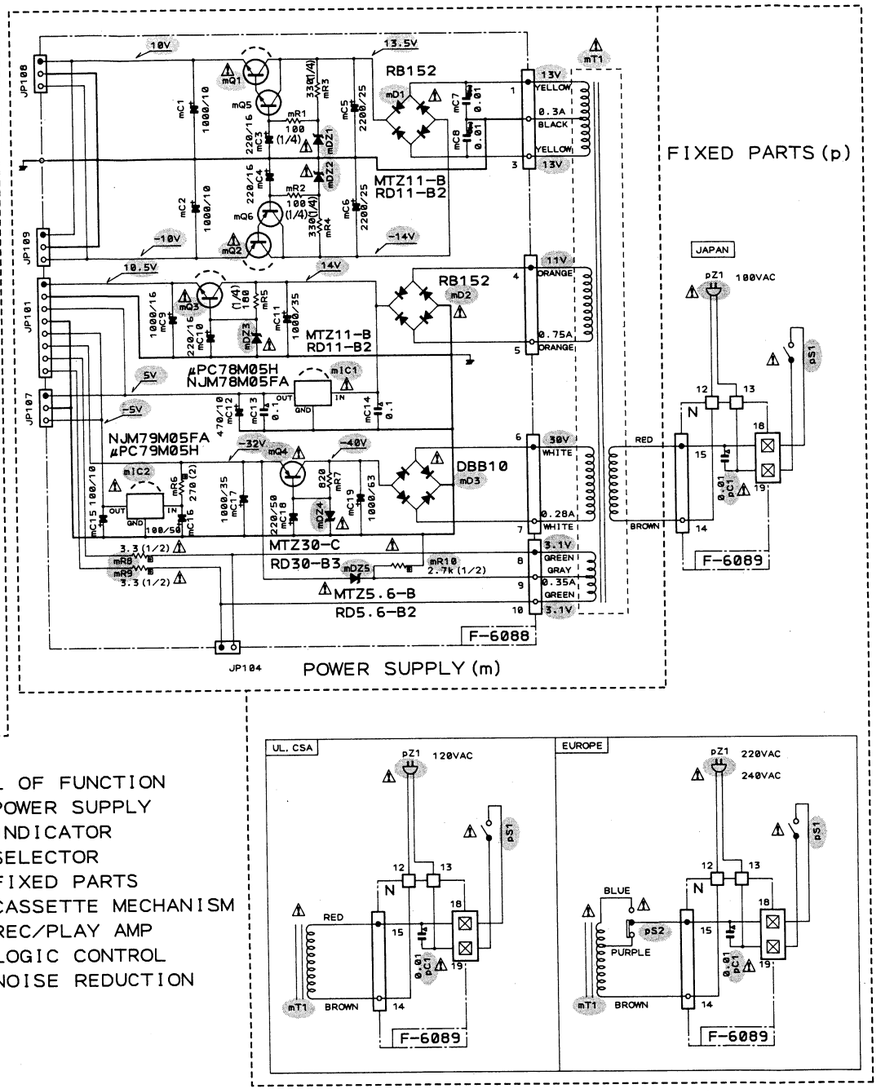
NJM79L05

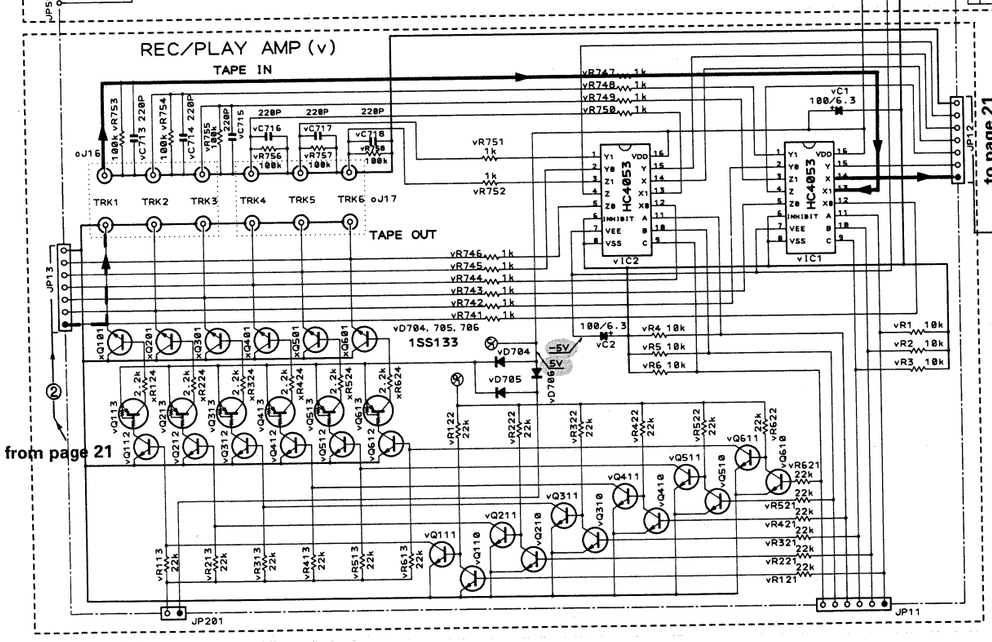
µPC79L05

10-3. SYNC & Power Supply Section

* Design and specifications are subject to changes without noitice for improvements.







SYMBOL OF FUNCTION
- (m) POWER SUPPLY
- (n) INDICATOR
- (o) SELECTOR
- (p) FIXED PARTS
- (t) CASSETTE MECHANISM
- (v) REC/PLAY AMP
- (w) LOGIC CONTROL
- (x) NOISE REDUCTION

SYMBOL
- △ Ceramic Capacitor
- Low-Leak Electrolytic
- B.P Bi-Polar Electrolytic
- Mylar
- Polypropylene Film
- Polystyrene
- Barrier Layer Capacitor
- Non-Inflammable Resistor
- Fusing Resistor
- Chip Component (Cylindrical Type)

RESISTORS
Are in ohms, 1/6Watts, ±5% Tolerance
Unless Otherwise Noted k:kΩ, M:MΩ
TOLERANCE G:±2% F:±1%
CHIP RESISTORS Are 1/8 Watts
CAPACITORS
Are in μF, Unless Otherwise Noted P:pF
ELECTROLYTIC CAPACITORS
Capacitance(μF)/Volt(V)
Each D.C.Voltage shows the nominal value in volts at during 6TRK recording

⚠ is Safety Part.
Use only replacement parts recommended by the manufacturer.

Recording Signal Line

1S2473D 10E-2 1SS133

MTZ11B MTZ30C MTZ5.1B MTZ5.6B MTZ6.8A RD30ES RD5.1ES RD5.6ES RD6.8ES RD11ES

DBB-10B

RLS-73

DTA114ES DTA114YS DTA143XS DTC114TS DTC114YS DTC124XS

2SA1115 2SA933S 2SC1740S 2SC2603

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NJM78L05A

Dot or Slit or Line

NJM78M05

μPC79M05 NJM79M05

μPC78L05

BA6208

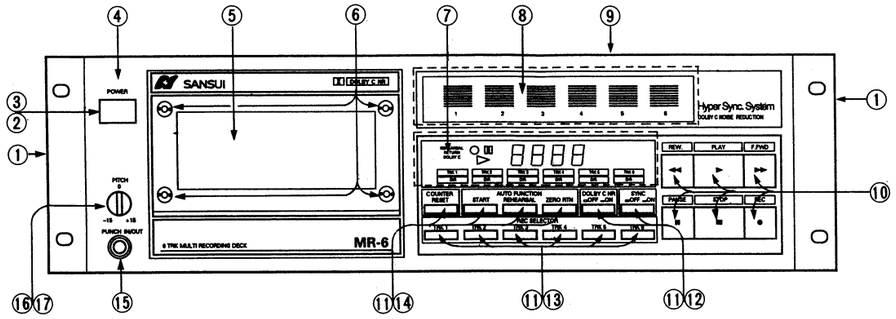
M5218L

NJM79L05

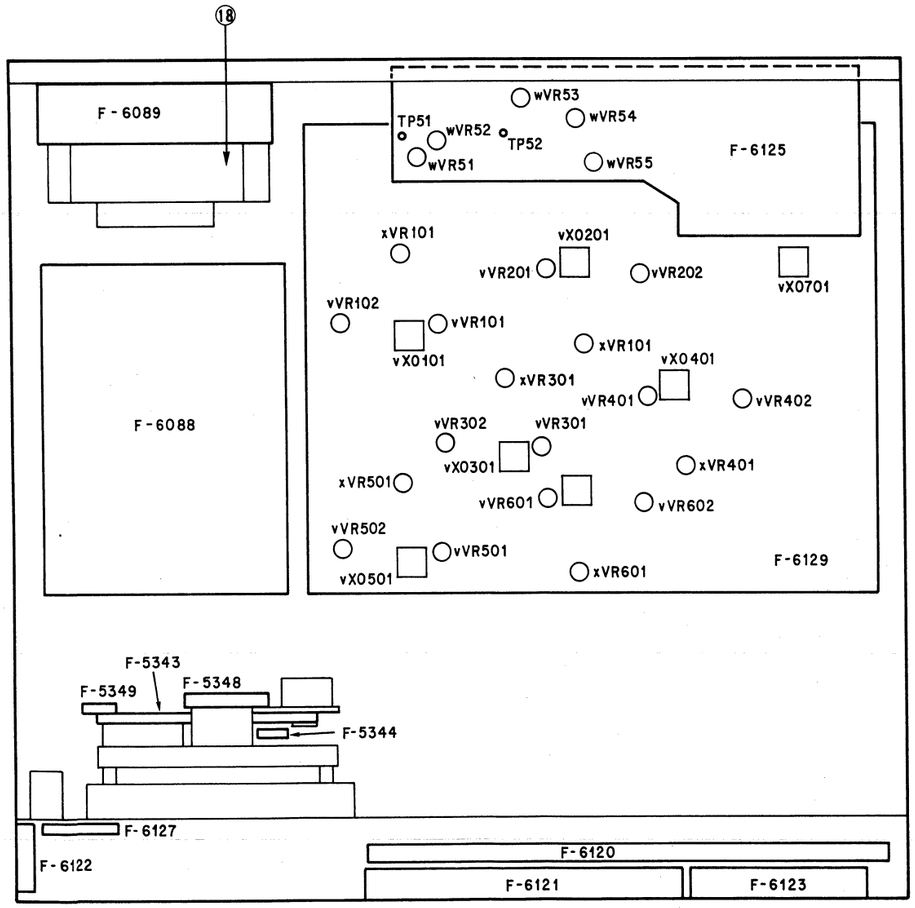
μPC79L05

11. OTHER PARTS

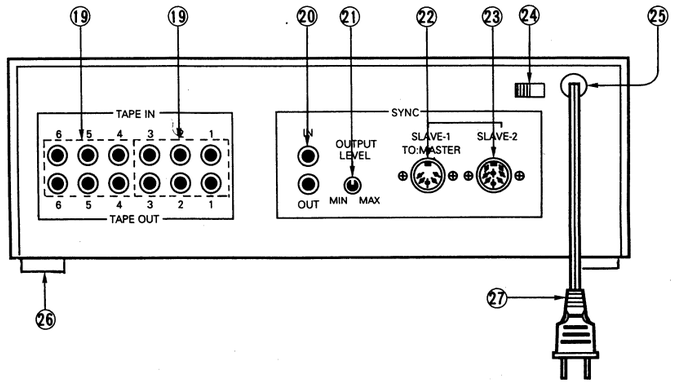
• **Front View**



• **Top View**



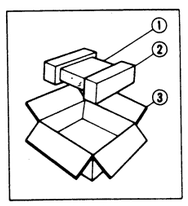
• **Rear View**



Parts No.	Stock No.	Description
1	27686000	Handle
2	27791800	Knob, POWER
⚠ 3	49198600	Push SW., POWER
4	27707500	Front Panel Ass'y
5	27680800	Cassette lid
6	27685400	Nut, Lid
7	49360500	FL Display, counter
8	49360400	FL Display, level meter
9	27637700	Bonnet
10	49250300	Tact SW., control
11	27677000	Knob, C·RESET, START, REHEARSAL, SYNC, ZERO RETURN, DOLBY C TRK 1~6
12	49367800	Push SW., DOLBY C, SYNC
13	49439000	Push SW., TRK 1~6
14	49439100	Push SW., C·RESET, START, REHEARSAL, ZERO RETURN

Parts No.	Stock No.	Description
15	49360800	Jack, PUNTCH IN/OUT
16	27791900	Knob, PITCH
17	49373600	5KΩ V.R., PITCH
⚠ 18	15034300	Power Transformer (OO)
⚠	15034302	Power Transformer (XX, UL, CSA)
⚠	15034305	Power Transformer (EU)
19	48528600	6P Terminal, TAPE IN/OUT
20	48528100	2P Terminal, SYNC IN/OUT
21	49370300	10KΩ V.R., SYNC OUT PUT LEVEL
22	49361100	DIN Jack, SLAVE-1
23	46852400	DIN Jack, SLAVE-2
⚠ 24	07204700	Slide SW., voltage selector (EU)
25	39106000	Strain Relief (OO, XX, UL, CSA)
	48913500	Strain Relief (EU)
26	47331100	Leg
⚠ 27	46411900	Power Supply Cord (OO)
⚠	38004700	Power Supply Cord (XX, UL, CSA)
⚠	38004500	Power Supply Cord (EU)

12. PACKING & ACCESSORY LIST



Parts List <PACKING LIST>

Parts No.	Stock No.	Description
1	27306700	Vinyl Bag
2	27790800	Styrofoam Packing (pair)
3	27689900	Carton Case <XX, UL, CSA, EU>
	27689800	Carton Case <OO>

Parts List <ACCESSORY LIST>

Parts No.	Stock No.	Description
	19050300	Operating Instructions <OO>
	19050400	Operating Instructions <XX, UL, CSA, EU>

SANSUI

SANSUI ELECTRIC CO., LTD.: 14-1, Izumi 2-chome, Suginami-ku Tokyo 168 Japan
PHONE: (03) 324-8891/TELEX: 232-2076 (International Division)
SANSUI ELECTRONICS CORPORATION: 1250 Valley Brook Ave. Lyndhurst, N.J. 07071 U.S.A.
17150 South Margay Ave. Carson, California 90746 U.S.A.
3036 Koapaka Street. Honolulu, Hawaii 96819 U.S.A.
SANSUI ELECTRONICS G.M.B.H.: Paul Ehrlich Strasse 8, 6074 Rödermark 2, West Germany
山水電気株式会社 東京都杉並区和泉2-14-1(〒168)

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